NEW HORIZON

RESEARCH JOURNAL

VOLUME - 2
2015

NAYAGARH AUTONOMOUS COLLEGE

NAYAGARH

विद्यायाऽमृतमश्नुते

NAYAGARH AUTONOMOUS COLLEGE
NAYAGARH - 752069, ODISHA, INDIA

NAYAGARH AUTONOMOUS COLLEGE

NAYAGARH

विद्याऽमृतमश्नुते

NEW HORIZON

Research Journal
Volume-2
2015

Publisher
Prof. Dadhibaman Sahu
Principal

Editor
Dr. Ashok Kumar Mohanty
Reader and Head, Department of Zoology

Associate Editors

Dr. Raj Kishore Maharana (Reader and Head, Dept. of Botany)
Dr. Niranjan Sia (Reader and Head, Dept. of Psychology)
Dr. Smt. Sanjukta Mishra (Lecturer in Physics)
Dr. Banambar Prusty (Lecturer in Odia)
Shri Pradeep Kumar Acharya (Lecturer in Commerce)

Date of Publication
17th July, 2015 (Naba Kalebar)

Place of Publication
Nayagarh Autonomous College
Nayagarh- 752069, Odisha, India

Printed at
Mahabir Printers, Khandapada Road, Nayagarh,
Mob.- 9937659861

Prof. Dadhibaman Sahu
Principal
Nayagarh Autonomous College,
Nayagarh

FOREWORD

It is a marvellous step to bring out the Research Journal " NEW HORIZON" annually under the auspices of Nayagarh Autonomous College, Nayagarh encompassing the studies on Science and Humanities .The tremendous explosion of knowledge needs to bring those pieces of information to the door step of common man. Our Journal "NEW HORIZON" makes a humble endeavour in this respect to present the thought of the explorer in a lucid and comprehensive manner before the readers. This journal incorporates quality articles not only from the teachers of our college but also faculty of other institutions.

The dynamic endeavor of our teachers to bring out such a quality Research Journal is really praise worthy.

Last but not the least, I convey my best wishes for the grand success of the Journal.

(Prof. Dadhibaman Sahu)
PRINCIPAL
NAYAGARH AUTONOMOUS COLLEGE
NAYAGARH

ABOUT THE JOURNAL

New Horizon, the Research Journal of Nayagarh Autonomous College is primarily intended as a medium of research publication for members of the staff. The editor may also invites papers based on innovative thought and research work from others.

The journal seeks to carry messages of scientific, educational and literary plan to all sections of people and promote a more earnest discussion on problems of scientific, social and economic development.

The views expressed in various articles are those of authors and not necessarily of the publisher or editor they represent.

Articles or photographs cannot be reproduced without permission from the publisher or author.

The Board of editors empowered to select the topics and make necessary corrections for publication in this journal.
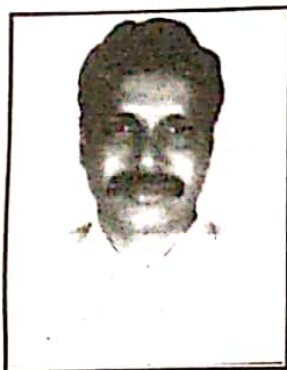
New Horizon appears annually in every year.

The address for Correspondence relating to the journal:

**Principal
Nayagarh Autonomous College,
Nayagarh, Odisha, India
Pin- 752069**

website: www.ngrautocol.org
E-mail:mohantyashok1958@gmail.com

Editor

Dr. Ashok Kumar Mohanty

Reader & Head Dept. of Zoology

Nayagarh Autonomous College, Nayagarh

Email:mohantyashok1958@gmail.com

EDITORIAL

The creation and acquisition of knowledge is the eternal thought of human beings. Its proper utilization will bring peace and prosperity in all spheres of individual life and the life of a nation. So the research activities in the field of Science and Humanities will no doubt bring a new dawn in the sky of our nation. I strongly believe our institution has energetic, knowledgeable and academic oriented faculties to enrich the Research Journal with their creative knowledge. I also thank the authors who have reflected their academic research excellence in the **"NEW HORIZON"** for popularization of their innovative ideas.

On the whole this current issue contains articles of multiple interest and I hope it will cater to the interest of students and scholars working in their respective fields.

I hope **"NEW HORIZON"** will inspire the academic community to carry on their research activity for time to come.

Lastly, I pray our beloved Almighty God **"Lord Jagannath"**, on the festive occasion of **"NabaKalebar"** to bless us to fulfil our noble mission.

(Dr. Ashok Kumar Mohanty)

Editor

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

Contents

A STUDY ON RESPIRATORY ACTIVITIES OF TASSAR SILKWORM ANTHERAEA MYLITTA DRURY DURING LARVAL DEVELOPMENT IN CAPTIVITY.

Dr. Ashok Kumar Mohanty

Reader in Zoology

Nayagarh Autonomous College, Nayagarh

ABSTRACT

The Organization of the respiratory mechanism of the arthropods reflects the evolutionary history of this group which began in the sea & continued in fresh water & on the land. The silkworm being the land dwelling Arthropods belong to Insecta adopt tracheal respiration. The respiration activities of the larva of different instars of silkworm A. mylitta were measured by using a simple respirometer designed by the author. The result indicated that the total oxygen consumption increased from 17.717 ml of O_2 in 1st instar to 2506.021 ml of O_2 in 5th instar and the total O_2 consumption during entire larval period was 3428.234 ml of O_2. The similar trend also seen when calculated on per Larva per day basis. The O_2 consumption increased from 3.543 ml of O_2/larva/day in 1st instar to 250.602 ml of O_2/ larva/ day in 5th instar. However when expressed on gram body weight/ day basis it shows the reverse trend ie. it decreased from 628.287 ml / gm of dry body weight / day in 1st instar to 98.273ml/ gm body weight / day in 5th instar.

INTRODUCTION

The process involved in securing and utilizing O_2 are known as respiration. The insects have secured a relatively high level of metabolic efficiency through the aid of physical diffusion, ventilatory movement & small body size aided by muscular thermogenesis

Apart from various types of modification of the body of arthropoda for respiratory purposes in different environmental condition, tracheal respiration achieve an efficiency in operation that makes a major contribution for the diversity

of specialization and high level of activity that these animals attain (Barrington, 1981)

The number & Arrangement of the functional spiracles varies enormously in the different groups of insects (Keilin, 1944 and Hinton, 1947).

It has often been observed that the greater part of the CO_2 is given off by the posterior half of the body (Wrede and Treeck, 1926; Mc Govran, 1931; wiggliesworth, 1935).

The rerpiratiory movement and metabolism in insect is controlled by both nervous and chemical means. The chemical control is by indirect action of CO_2 on nervous system & directed by way of hormone (Roeder, 1985).

To estimate the metabolic rate the respiration of A.mylitta larva was measurred during different instars using a calibrated manometric respirometer designed in the laboratory (Mohanty, A.K. 1991.)

For survival and continuance of life processes animals use energy, which is released from the combustion of the food substance ingested or preserved substances in their bodies. Physiologically the process of combustion requires oxygen (O_2) & produces carbondioxide (CO_2) gas. The animal receives O_2 & get rid of CO_2 from the body through various respiratory organ.

The rate of uptake of O_2 by an organism and efficient respiratory exchange depends upon the gradient of concentration between the organism and the layer of the medium that immediately surrounds it, moist respiratory surface and continuous replacement of O2 that is taken up from the medium (Barrington, 1981).

Rate of respiration is influenced by temperature and acidity (Punzo, 1983, 1988b), size of the insect (Fox et al., 1937), Muscular activity (Krogh, 1941). Photoperiod (Dehnel, 1960) sex and hormone (Barron and Tamisian, 1948) and age (Prosser, 1973).

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

Gaseous exchange in insects is carried on through trachea, which extends to all parts of the body and may become functionally intracellular in muscle fibers (Chapman, 1980).

Work on insect respiration has been done by many workers like Jolly and ferrari, 1960, Anonymous, 1975, Axelsson, 1977, Mackey, 1978; Bursell and Taylor, 1980; Edward and Wightman, 1984; Coelho and Moore, 1989 and Punzo and Thompson 1990) and reviewed by workers like Buck (1962) Miller (1966) and Mohanty (1991).

In the life cycle of the tasar silkworm A.mylitta, the larval stages are of great significance as it is the most active and energy gathering phase. To utilise the food and transform it to body components, efficient oxidation of food stuff is essential. Hence, depending on the food gathering ability, assimilation efficiency and the rate of growth; the consequent demand for oxygen varies during the different instars of the larval life. In nature, under variable ambient conditions (particularly temperature) this process is greatly influenced, as these organisms are poikilothermic and poor regulators.

Informations on the respiratory physiology of the tasar silkworm A.mylitta are scanty till date. An attempt has therefore been made in the present work to measure the oxygen consumption rate in the larvae of A.mylitta during different larval instars.

MATERIALS AND METHODS

Respiration of the larvae of different instars were measured using a simple respirometer designed in the laboratory with some modifications in the manometer and the manometric fluid (Rao and Pattnaik, 1973, Hurkat and Mathur, 1974 ; Mohanty, 1991) (fig.1)

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

PRINCIPLE

If the animal is kept in an air tight chamber filled with pure O_2 having provision for absorption of CO_2 and H_2O vapours and if this chamber is properly connected to a manometer (a graduated scale with a 'u' shaped glass tube fitted to it as shown in fig.1. and the manometer tube is filled with manometric fluid (Toluene) where the level in one limb of the tube will fall and in other limb it will rise. The difference will be in proportion to the O_2 consumed by the animal in a given time. The volume of O_2 consumed was calculated using the formula:

$$v = \pi r^2 h$$

where

v = Volume of oxygen consumed

$\pi = 22/7$ (a constant)

r = radius of the manometer tube containing manometric fluid

h = height change during respiration.

DESIGN AND FABRICATION OF APPARATUS

The fabricated respirometer is shown in fig-1. An one liter (size may vary) bell jar (1) was taken in which the experimental animal was kept. A three holed rubber cork (4) was inserted into the mouth of the bell jar. Into the three holes of the rubber cork O_2 inlet tube (6), O_2 outlet tube (8) and a thermometer (5) was fitted and they were made air tight by applying silicon grease. Inside the bell jar two small beakers (2 and 3) were kept having a fine meshed nylon net covering around the mouth of the beaker (2) In one beaker (2) NaOH or KOH granules were kept to absorb CO_2 and H_2O Vapours and in the other beaker (3) soda lime grannules were kept for CO_2 absorption. The O_2 outlet tube was connected by means of pressure rubber tube (9) to the manometer tube (10) containing the

manometric fluid. The manometer tube was fitted against the manometer scale (11). The level of the manometer fluid in both the arms were adjusted to equal height before starting the experiment. The O_2 inlet tube was connected to a pressure rubber tube and was clamped (7) so that by closing or opening of the rubber tube the entry of air was regulated as and when required. The height of the manometer (12) could be adjusted with the help of an adjustment screw (13) and the whole set was kept on a wooden base (14). The entire set up i.e. respirometer was handy and easily movable on work bench.
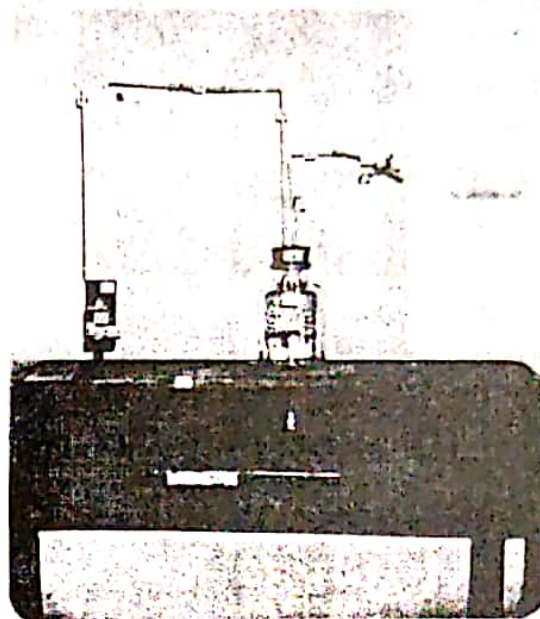
fig.-1 A simple indigenously designed respirometer for estimating rate of respiration of A.mylitta Larvae

METHOD

A thin layer of silicone grease was applied on the mouth of the glass jar to make it air tight after the animal was kept in the jar for respiratory measurements. The stopwatch was used for time recording. The reading in the manometer was taken at interval of 5 minutes and it was repeated for 50 minutes (10 readings). The inside temperature of the jar was noted. The barometric pressure was also recorded at the same time. The change in the height of the manometric fluid gave the amount of oxygen consumed by the larva. The O_2 consumption was measured on live weight basis and expressed on dry weight basis after converting it into STP by the gas equation ($P_0 V_0 / T_0 = P_1 V_1 / T_1$).

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

RESULTS

A perusal of result (Tab. 1) indicated that the total oxygen consumption increased from 17.717 ml of O_2 in 1st instar to 2506.021 ml of O_2 in 5th instar and the total O_2 consumption during entire larval period was 3428.234 ml of O_2. similar trend was also seen when calculated on per larva per day basis The O_2 consumption increased from 3.543 ml of O_2/ larva/day in 1st instar to 250.602 ml of O_2/ larva/day in 5th instar and when calculated for the entire larval period it was 103.886 ml of O_2/ larva/day. However. when expressed on gram body weight/day basis the trend was just the reverse i.e. it decreased from 628.287 ml/gm of dry body weight/day in 1st instar to 98.273 ml/gm of dry body weight/day in 5th instar and in entire larval period it was 281.020 ml / gm of dry body weight/day.

DISCUSSION

In poikilotherms ambient temperature influences their metabolism. The insects, as poikilotherms and with extremely limited themoregulatory abilities are profoundly influenced by temperature with respect to their metabolism. The larvae of these lepidopterans being the most active phase in life cycle, have to maintain an optimum metabolic activity. In case of A.mylitta our results on respiration indicated that the rate of metabolism in 1st instar was highest. As the larva grew and attained the final larval instar i.e. 5th instar, the maximum possible growth for the individual has been reached. The secretory materials i.e. silk (sericin and fibroin) have already been synthesized and stored in the silkgland. The feeding on gm body weight basis of the larva has also been reduced and finally stopped prior to spinning. At this stage the active metabolism which is more energy dependant is reduced. The data on O_2 consumption also indicates a reduced, relatively lower rate of metabolism in 5th instar as compared to other instar larvae (Tab 1). It seems that the reduced amount of O_2 consumed at this stage is mainly for the minimal standard metabolism and the secratory activity related to spinning. Further, the rate of respiration has followed a declining trend as the larva grew older (Tab.1).

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

Table 1 : Oxygen (O_2) consumption by the larvae of A. mylitta during different instars (dry weight basis).

Larval instars	OXYGEN CONSUMPTION		
	Total O_2 consumption	Average rate of O_2 consumed (ml)	
		Per larva/ day	Per gm body wt./day
	(ml) $\pm$S.D.	$\bar{x}\pm$S.D.	$\bar{x} \pm$ S.D.
1st	17.717 $\pm$ 1.964	3.543 $\pm$1.964	628.229 $\pm$ 0.139
2nd	69.650 $\pm$ 5.214	13.930 $\pm$ 5.214	475.421 $\pm$ 0.020
3rd	238.123 $\pm$ 16.483	39.687 $\pm$ 16.483	288.739 $\pm$ 0.001
4th	596.723 $\pm$ 31.782	85.246 $\pm$ 31.782	148.604 $\pm$ 0.001
5th	2506.021 $\pm$ 73.372	250.602 $\pm$ 73.372	98.273 $\pm$ 0.001
Entire larval Period	3428.234 $\pm$110.286	103.886 $\pm$ 110.286	281.020 $\pm$ 197.546

$\bar{x}$- Average Value

S.D. - Standard deviation.

REFERENCES

Anonymous(1975) Text book of tropical sericulture, Edited by : Japan overseas cooperation volunteers, 2nd print : Out line of physiology of silkworm larvae directly concerning rearing practices, Chap. 9,p. 372-439.

Axelsson, B. (1977) Applicabillty of laboratory measurements of bioanergetic efficiencies to field populations of operophthera fagata schart and O. brumata L. (Lep., Geometridae), zoon., 5: 147-156.

Barrington, E.J.W. (1981) Invertebrate structure and function, 2nd edn. The English Language Book Society Edition, Great Britain.

Barron, E.S.G. and Tamisian, T.N. (1948) Metabolism of cockroach muscle. J. Cell. Comp. Physiol. 32 57-70

Buck, J. (1962) Some physical aspects of insect respiration. A. Rev. Ent., 7 : 27-56

Chapman, R.F., (1980) The insects : structure and function, ELBS edition, Great Britain.

Hinton, H.E. (1947) On the reduction of functional spiracles in the aquatic larvae of the Holometabola with notes on the moulting process of spiracles, Trans. R. ent. soc. Lond, 98 : 449-473.

Hurkat, P.C. and Mathur, P.N. (1974) A Simple Indiginoualy designed metabolizer for estimating som'nolence metabolic rate in lower animals, Ind. J. Expt. Biol., 12 : 579-580.

Jolly, M.S. and Ferrari, A. (1960) A comparative study on oxygen uptake in normal and DDT treated cockroaches (Blata orientalis) in relation to sex, developmental stage and region of application of DDT. Genetica Agraric, 13 (1-2): 199-211.

Keilin, D. (1944) Respiratory systems and respiratory adaptations in larvae and pupae of Diptera. Parasitology. 36 : 1-66.

MC Govran, E.R. (1931) Measurement of tracheal ventilation of Grasshopers. Ann. Ent. Soc. Amer, 24 : 751-760.

Miller, P.L. (1966) The regulation of breathing in insects. Adv. Ins. physiol, 3 : 279-344.

Mohanty, A.K. (1991) Studies on Some Physiological, Biochemical and Biometric aspects during development in the tasar silkworm, Antheraea mylitta Drury, Ph.D thesis, Sambalpur University, Jyotivihar, Burla, Odisha, India.

Prosser, C.L. (1973) Comparative Animal Physiology, 3rd ed, W.B. Saunders Company, London.

Rao, K.L. and Patnaik, B.K. (1973) Correlation between body weight, snout to vent length, tail girth and metabolic rate in male garden lizards (Calotes versicolor). Exp. Geront. 8 : 173-176.

Roeder, K.D (1985) Insect physiology (Indian Reprint) International Books and periodicals supply service, New Delhi.

Wigglesworth, V.B. (1935) Respiration, Flea. proc. Roy. Soc., London, B. 118 : 397-419

Wre de, F. and Treeck, A. (1926) Tracheal respiration in catterpillars. Arch. Ges. Physiol. 211 : 228-243.

STUDIES ON SEASONAL VARIATIONS IN PHYTOPLANKTON DIVERSITY OF HOT WATER SPRING, ATRI, ODISHA, INDIA

Manoj Kumar Mohapatra[1] and Dr. Ajay Kumar Patra[2]

[1]Lecturer in Zoology, Banki Autonomous College, Banki
[2]Former Professor, P.G.Dept of Zoology, Utkal University, Bhubaneswar

ABSTRACT

Phytoplankton in Atri hot water Spring of Odisha investigated monthly basic from January 2012 to December 2013. Result revealed that diversity of species Chlorophyceae % whereas Cyanophyceae and Bacillariophyceae were composed. The physicochemical parameters such as water temperature, PH, total alkalinity, chloride and phosphate were significantly related to phytoplankton abundance.

Keywords: Seasonal variations, Phytoplankton, Atri, Diversity.

INTRODUCTION

Phytoplankton was used as indicators of water quality (APHA, 2005) Phytoplankton the most impotent biological phenomenon in nature in which the entire array of the life depends, is the integral component of water ecosystem which determines the primary productivity of the system. It is the bio-indicators of water pollution. Its appearance, disappearance, density and pattern of distribution depend upon biotic and abiotic factors (Gupta etal, 2005, Komala, 2013) and Lewitus etal, 1998, Escaracvage etal, 1999)

The present dissertation complies the date of two consecutive years (2012 and 2013) of study on qualitative (Taxonomic identification) and quantitative survey of various phytoplankton of hot spring Atri (standing stock and percentage composition of planktonic tax)

MATERIALS AND METHODS

The plankton samples were collected by a plankton net of standard bolting silk cloth No- 25 (Mesh size 0.03 - 0.04 mm) Planktons were collected in every month of the sampling 100 liters of water sample by a plastic bucket of 20 liters capacity through the plankton net. Finally, plankton sediment volume was adjusted to 30ml in the plankton net tub and preserved in 4% formaldehyde solution. The samples wear then taken to the laboratory for qualitative and quantitative estimation under the binocular stereoscopic microscope using a Sedgwick rafter type counting cell (1ml capacity) Escaravage and Prins (2002). After shaking the container congaing concentrated sub sample, 1 ml was quickly drawn a wide mouth pipette and poured in the plankton counting cell. All the organism encountered were represented in absolute number. About ten counting of each

sample were made and the data represented in the text were average values of the counting.

The density of population of the three major groups of algae viz. Chlorophyceae, Bacillariophyceae and Cyanophyceae were estimated seasonally from 2012 to 2013. The percentage of occurrence of three groups was calculated every month by taking their value from density population (Reynolds etal 2001)

RESULTS

The phytoplankton composition of Atri was constituted mainly Chlorophyceae, Cyanophyceae and Bacillariophyceae Variation in the qualitative and quantitative estimation of phytoplankton was noted seasonally with the bimodal fluctuation of individual group in the table-1.

The total number of species belonging to different taxonomic groups were 12 in 2012 & 11 in 2013. Thirty three genera comprising of 12 species (7 and 6 in 2012 and 2013 of Chlorophyceae, 2 of Bacillariophyceae and 3 of Cyanophycae were identified Bimodal nature of population peaks for whole phytoplankton was observed during winter and summer in term of percentage of distribution and standing stock. Among the Phytoplankton, Chlorophyceae was dominated in numerical form as well as percentage composition. Primary peak stage of plank tonic blooming was reported during winter and secondary peak was noticed during summer. Chlorophyceae showed its peak period only during summer, while Cyanophyceae showed the primary peak during summer and secondary peak during late monsoon (winter) The standing stock and percentage composition of phytoplankton flora showed the seasonal fluctuation due to the variation in composition of its different groups seasonally. Among the Phytoplankton, Cyanophyceae was dominated in numerical form as well as percentage composition. Primary peak stage of plank tonic blooming was reported during winter and secondary peak was noticed during summer.

Cyanophyceae showed its peak period during summer, while Cyanophyceae showed the primary peak during summer and secondary peak during late monsoon (winter) The standing stock and percentage composition of phytoplankton flora due to the variation in composition of its different groups seasonally.

ABUNDANCE

Phytoplankton from the sample water taxonomically identified and recorded with their scientific names. They are classified into three group's viz. (1) Chlorophyta (2) and (3) Bacillariophyta. All total 12 species of Phytoplankton were found during two years of investigation (Jan 2012 to Dec 2013) (Table-1) 12 species were observed during 2012 and 11 species were observed during 2013 (Table-1) During 2012 all total 7 species and

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

during 2013 all total 6 species of Chlorophyta, 3 species of Cyanophyta and 2 species Bacillariophyta in both the year were identified (Table -1)

Table-1: Phytoplankton abundance of Atri during 2012 and 2013

Phytoplankton	2012	2013
Total species (nl^{-1})	12	11
Total number (nl^{-1})	110 – 667	132 – 681
Chlorophyceae species (nl^{-1})	7	6
Chlorophyceae number (nl^{-1})	42 – 433	58 – 412
Chlorophyceae species (nl^{-1})	3	3
Chlorophyceae number (nl^{-1})	19 – 65	21 -63
Bacillariophyceae species (nl^{-1})	2	2
Bacillariophyceae number (nl^{-1})	47 - 221	45 - 223

Table-2: Standing crop and % distribution of major phytoplankton 2012

Month	Total phytoplankton	Chlorophyceae		Cyenophyceae		Bacillariophyceae	
	n/l	n/l	%	n/l	%	n/l	%
Jen	548	385	70.255	63	11.496	100	18.248
Feb	667	397	59.520	49	7.346	221	33.133
Mar	653	398	60.949	51	7.101	204	31.240
Apr	646	430	66.563	64	9.907	152	23.529
May	703	433	61.593	65	9.246	205	29.160
Jun	516	366	70.930	42	8.139	108	20.930
July	411	278	67.639	31	7.542	102	24.817
Aug	165	048	29.090	19	11.515	98	59.393
Sept	110	042	38.181	21	19.090	47	42.727
Octo	337	188	55.786	23	6.824	126	37.388
Nov	232	054	23.275	22	9.482	156	67.241
Dec	478	285	59.623	29	6.066	164	34.309

Table-3: Standing crop and % distribution of major phytoplankton 2013

Month	Total phytoplankton	Chlorophyceae		Cyenophyceae		Bacillariophyceae	
	n/l	n/l	%	n/l	%	n/l	%
Jen	558	395	70.788	61	10.931	102	18.279
Feb	663	398	60.030	42	6.334	223	33.634
Mar	654	399	61.009	43	6.574	212	32.159
Apr	597	412	69.011	61	10.217	124	20.770
May	681	396	58.149	63	9.251	222	32.599
Jun	454	302	66.519	44	9.691	108	23.788
July	441	298	67.573	39	8.843	104	23.582
Aug	182	62	34.065	21	11.538	99	54.395
Sept	132	58	43.939	29	21.969	45	34.090
Octo	371	188	50.673	30	8.086	153	41.239
Nov	246	75	30.487	28	11.382	143	58.130
Dec	488	305	62.500	32	6.557	151	30.942

Table-4: Seasonal Rhythm in Physico- Chemical Parameters of Atri During 2012

Month	Water Temp(C)	pH	DO^2 mgl^{-1}	Chloride mgl^{-1}	Nitrate mgl^{-1}	Phosphate mgl^{-1}	Total Alkalinity mgl^{-1}
Jen	56	6.7	1.5	8.42	0.175	0.039	14
Feb	56	6.7	1.4	9.1	0.23	0.024	17
Mar	57	6.7	1.6	8.3	0.24	0.017	20
Apr	56	6.6	1.5	7.52	0.142	0.013	24
May	56	6.5	1.4	6.1	0.173	0.039	21
Jun	56.1	6.5	1.0	6.0	1.3	0.027	18
July	56.1	6.6	1.2	8.3	2.02	0.020	13
Aug	56.1	6.7	1.3	3.23	2.04	0.016	7
Sept	57	6.7	1.3	7.4	1.8	0.046	4
Octo	56	6.7	1.4	8.1	2.2	0.027	6
Nov	56	7.0	1.4	6.08	2.12	0.029	9
Dec	57	6.7	1.5	6.4	1.9	0.024	11

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

Table-5: Seasonal Rhythm in Physico- Chemical Parameters of Atri During 2013

Month	Water Temp(C)	PH mgl^{-1}	DO^2 mgl^{-1}	Chloride mgl^{-1}	Nitrate mgl^{-1}	Phosphate Alkalinity	Total mgl^{-1}
Jen	56	6.7	1.5	8.53	0.164	0.034	17
Feb	56	6.8	1.4	9.2	0.288	0.023	20
Mar	56	6.8	1.6	8.4	0.22	0.013	21
Apr	57	6.7	1.2	7.6	0.15	0.012	25
May	56.2	6.6	1.4	6.2	0.17	0.035	19
Jun	56.2	6.5	1.0	6.2	1.65	0.036	14
July	56	6.6	1.1	8.2	1.93	0.021	10
Aug	56	6.7	1.2	9.3	2.12	0.017	8
Sept	56	6.8	1.3	7.3	1.13	0.041	5
Octo	56	6.8	1.3	8.5	2.14	0.032	7
Nov	56	7.0	1.4	6.12	2.135	0.029	9
Dec	56.5	6.7	1.5	6.3	1.653	0.025	12

Total phytoplankton were observed to be maximum 703 (n/l) in May and minimum 110 (n/l) in September during 2012 and maximum 681 (n/l) in May minimum 132 (n/l) September during 2013 (Table-2)

Out of the total species percentage of Cyanophyta was 53.844 % and 46.156 % during 2012 and 2013 respectively. Where as percentage of Bacillariophyta was 21.425% and 23.078% during 2012 and 2013 respectively. The Chlorphyta was 24.741% and 30.766% during 2012 and 2013 respectively. With its bimodal nature, population of whole Phytoplankton reached its peak on the month of May in each year, 2012 and 2013. This is revealed from the percentage of distribution and standing stock reflected in Table-2&3

Chlorophyta reached its peak in the month of May with 433 (n/l) during 2012 and in the Month of April 412 (n/l) during 2013. Minimum of standing crop (n/l) was observed to be 110 and 132 during 2012 and 2013 respectively in the month of September each year. Whereas Cyanophyta reached its peak in the month of May with 65 (n/l) and 63 (n/l) during 2012 and 2013 respectively. Minimum of standing crop (n/l) was observed to be 19 and 21 during 2012 and 2013 respectively in the month of August. Similarly Bacillariophyta reached its peak 221 (n/l) and 223 (n/l) in the month of February during 2012 and 2013 respectively. Minimum of standing crop (n/l) was observed to be 47 and 45 during 2012 and 2013 respectively in the month of September. (Table-2&3)

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

DISCUSSION

The present investigation had been discussed in relation to the Phytoplankton composition, frequency, periodicity of dominant species in different Physicochemical conditions of the aquatic environment. Presence of the three groups of Phytoplankton viz Chlorophyceae, Cyanophyceae and Bacillariophyceae (diatoms) agrees with finding of (APHA, 2005) in other riverine systems of India.

The volume and percentage contribution of phytoplankton vary from month to month in Atri. Further, the availability of phytoplankton in the riverine ecosystem depended upon its phytoplankton Reduced numbers of phytoplankton had been reported from acidic water and it was supported by Lewitus etal (1998)

The maximum number of phytoplankton population was recorded in rain to summer May to summer and minimum in wither demonstrated that phytoplankton has a remarkably adaptability to change in salinity. The maximum numerical abundance of the Phytoplankton community in the post monsoon might be attributed to the impact of nutrients through surface run off during monsoon at high precipitation rate. This increase in algal density and diversity was perhaps due to the nutrient load in the water during monsoon which might be due to distribution of algal from in any habitat depends on the natural changes in environmental conditions, seasonal variation, water quality and the relative adaptability of species. The results of the present study indicated that moderate flow of water provides benefits to increase phytoplankton population during winter and early summer month. Similar result had also been observed by Le Quere etal 2005. observed winter peak of Chlorophyceae too. The plankton community on which the whole aquatic depends directly or indirectly was largely influenced by the interaction of number of factors (Lewitus et al 1998) However, during the investigation it is noticed that the effect of physical forces like light and heat is great limn logical significance as they are solely responsible for many of the phenomena like thermal stratification, chemical stratification, diurnal and seasonal variations in the number and distribution of plankton, spatial distribution of micro-and macro organisms, and Cyclomorphosis etc. Further higher value of sulphur may not be favorable for growth of the algae in the hot spring system. Thus, water quality has a greater influence on the ability of aquatic plants and animals to exist and grow in a stream, lake pond or bay and pointed out that a number of physical, chemical and biological environmental circumstances acting simultaneously must be taken to consideration in understanding the fluctuations of plankton population. The effect of pollutants coming from various anthropogenic activities and factors operating on land are more pronounced at the interface. As a. major element in aquatic biota, the algal column often exhibits dramatic challenges in response to different types of pollutants.

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

So far the report of Escaravage and Prins, (2002) is conceernd, the seasonal variation in a plankton population is a common phenomenon and has been attributed to many factors. During the study it was observed that the phytoplankton population was comparatively high during winter and early summer and low in rainy. The lowest population in the rainy season may be attributed to unfavorably hydrographic and physicochemical conditions of the water, which corroborated with the reports of Escaravage and Prins, (1999) and had also recorded the low density of plankton during rainy season due to high influx of flood water and rain washings and ultimately much of it was also lost in the heave draw-down. The concentration decreased during monsoon floods, but increased rapidly with decline in water current and turbidity during post-monsoon month. The lower values for the plankton communities during monsoon season may be attributed to high inflow of water from the catchment area changing the hydrology of the river system as a result of dilution (LeQuere et al., 2005)

Phytoplankton shows the seasonal variation in composition (nl-1) with the periodic maxima and minima of Chlorophyceae, The maximum number of total phytoplankton during summer season and winter season indicates the good physicochemical conditionin relation to the phytoplankton population. The high values of the phytoplankton number reflect entropc conditions. The high density of Phytoplankton was caused due to increased levels of phosphorus and nitrogen of which the former acts as primary limiting factor. It was because phosphorus is most rapidly and commonly used by vast majority of algae and the algal growth was affected when phosphorus level was below the critical level (Kauppila et al., 2004)

The phytoplankton increases more in number after post monsoonal period and reaches its peak during early summer utilizing phosphate and nitrogen from the medium showing an inverse correlation ship with these nutrients (with phosphate $r=-1.094$; $p<0.01$ and with nitrogen $r=-0.087$; $p<0.01$) During winter and early summer the phosphate and nitrogen contens decrease with increase of autotrophy level.

The maximum phytoplankton population found from winter and summer leading to higher productivity in summer, may be due to the favorable condition of the water. In season, the population was low, probably due to increased rainfall, the increase in crease in water level, high water current, increase turbidity run off and dilution effect of flood. Similar had also been observed by kumar et al., (2005)

Chlorophyceae

Amoung Chlorophyceae, the dominant species are Ulothrix zonata, Spirogyra sp, Cosmarium reniforme are majority of algae and the algal growth was affected when phosphorus level was below the critical level (Komala et al., 2013)

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

Bacillariophyceae (Diatoms)

The results of analysis of variance showed a greater variation in both seasons and sampling point. Lewitus etal 1998 reported that in winter and spring the group Bacillariophyceae showed apak density in lake Ohakari, Newzealand Kumar et al., (2005) observed that the Bacillarian population was known to be the inhabitant of polluted water in Jhelum river, Kashmir.

Species Diversity and Equitability

It was observed that throughout the studies the values were very low. The high diversity index value indicated that Cyanophyceae and Bacillariophyceae grow richly in the polluted area whereas Chlorophyceae can not tolerate the pollutants to the same degree as Cyanophyceae and Bacillariophyceae However in the present study it was revealed that the percentage contribution of different groups of phytoplankton to total plankton community varied from season to season.

The higher diversity of phytoplankton species at the pollution free sites might be attributed to the more favorable. Environmental conditions. For instance while there was more light penetration due to low total dissolved solids, dissolved oxygen was high due to greater primary productivity. The low diversity values associated with the sewage disposal site may be due to pollution stress imposed by sewage effluent and reduced transparency the maximum value H (Shammon- Weaver Index) was observed from winter to summer when physical environmental conditions were normal and lowest values during June-July to October when the environment was disturbed due to rains. According to (APHA, 2005) the Shannon weaver Index reflects the change in community brought about by the environmental. The present observation support to (Komala etal; 2013) who opined that higher values of H indicates the absence of stress factor and the low values appear during monsoon.

REFERENCES

APHA (2005) Standard methods for the examination of water and waste water. 21 st Edn; APHA, AWWA, WPCF, Washington, D.C., USA.

EscaravageV.and Prins T.C. (2002) Silicate availability. Vertical mixing and grazing control of phytoplankton blooms in mesocosms. Hydrobiologia, 484; 33-48.

Gupta S.K., Dixit S and Tiwari S. (2005) An assessment of Heavy Metals in surface water of lower lake, Bhopal, India, Poll Res 24 (4); 805-808.

Kauppila P, Pakanen H., Raike A., Kiirikki A., Back M. and Kangas S. P. (2004) the Baltic waters around Finaland; Eutrophication continuses despite decreased

nutrient loading. In P. Elorantant(ed) inland and Costal waters of Finland. SIL XXIX congress. Lahti, Finland ;8-14.

Komala, H.P., Nanjundaswamy L. and Devi Prassad. A.G. (2013) An assessment of Plankton diversity and abundance of Arkavahi River with reference to pollution. Advances in Applied Science Research, 4(2); 320-324.

Kumar R, Singh R.D. and Sharma K.D. (2005) Water Resources of India, Current Science, 89 (5): 794-811.

le Quere C., Harrison S.P., Prentice I.C., Buitenhuis E.T. Aumont O., Bopp L.and Clauster H. (2005) Ecosystem dynamics based on plankton functional type for Global ocean biogeochemistry models. Global change Biology, 11: 2016-2040.

Lewitus, A.J, Koepfler E.T. and Morris J.T. (1998) Seasonal variation in the regulation of phytoplankton by nitrogen and grazing in a salt-marsh estuary. Limnology and Oceanography, 43 (4): 636-646.

Reynolds C.S., Irish A.E. and Elliott J.A. (2001) The Ecological basis for simulating Phytoplankton responses to environmental change (Protech) Ecological modeling. 140: 271-291.

■■■

DEGREE OF APPROXIMATION OF FUNCTIONS ASSOCIATED WITH HARDY-LITTLEWOOD SERIES IN THE HÖLDER METRIC BY HAUSDORFF MEANS

Dr. Sangram Keshari Ray

Reader in Mathematics, Ranpur College, Ranpur, Nayagarh, Odisha

1   Definitions and notations

Let $C_{2\pi}$ denote the Banach space of all 2π periodic continuous functions defined on $[-\pi, \pi]$ under sup-norm for $0 < \alpha \leq 1$ and some positive constant K. The function space H_α is given by

$$H_\alpha = \{f \in C_{2\pi} : |f(x) - f(y)| \leq K|x - y|^\alpha\} \tag{1.1}$$

The space H_α is a Banach space [42] with norm $\|.\|_\alpha$ defined by

$$\|f\|_\alpha = \|f\|_c + \sup_{\substack{(x,y) \\ x \neq y}} \Delta^\alpha[f(x,y)] \tag{1.2}$$

where $\|f\|_c = \sup_{-\pi \leq x \leq \pi} |f(x)|$

$$\text{and} \quad \Delta^\alpha f(x,y) = \frac{|f(x) - f(y)|}{|x - y|^\alpha}, (x \neq y) \tag{1.3}$$

We shall use the convention that $|\Delta^0 f(x,y) = 0$. The metric induced by the norm (1.2) on H_α is called the Hölder metric.

Let f be a periodic function of period 2π and integrable in the sense of Lebsgue over $[-\pi, \pi]$. Let the Fourier series associated with f at x be

$$\frac{a_0}{2} + \sum_{n=1}^{\infty} (a_n \cos nx + b_n \sin nx) = \sum_{n=0}^{\infty} A_n(x) \tag{1.4}$$

We write

$$\varphi_x(t) = \frac{1}{2}\left\{ f(x+t) + f(x-t) - 2f(x) \right\} \tag{1.5}$$

$$g_x(t) = \int_t^\pi \varphi_x(u)\frac{1}{2}\cot\frac{u}{2}\,du \tag{1.6}$$

Let $S_n(x)$ and $S_n^*(x)$ respectively denote the partial sum and modified partial sum of (1.4) that is

$$S_n(x) = \sum_{k=0}^n {}' A_k(x), \quad S_n^*(x) = \sum_{k=0}^{n-1} A_k(x) + \frac{1}{2}A_n(x)$$

It is known ([51], p. 50) that

$$S_n^*(x) - f(x) = \frac{2}{\pi}\int_0^\pi \frac{\varphi_x(u)\sin nu\,du}{2\tan\frac{u}{2}} \tag{1.7}$$

Let $\sum a_n$ be an infinite series and $\{s_n\}$ be the sequence of its partial sums. Corresponding to a given sequence $\{\mu_n\}$ of real or complex numbers, we write the sequence to sequence transformation

$$t_n = \sum_{k=0}^n \binom{n}{k}\left(\Delta^{n-k}\mu_k\right)S_k \tag{1.8}$$

where for $n \geq 0, \Delta^0\mu_n = \mu_n; \Delta^p\mu_n = \Delta^{p-1}(\mu_n - \mu_{n+1})\,p \geq 1.$

The sequence $\{t_n\}$ is called the Hausdorff mean of $\{s_n\}$. The sequence $\{s_n\}$ (the series $\sum_{n=0}^\infty$) is said to be summable (H, μ_n) [22] to s if

$$\lim_{n\to\infty} t_n = s. \tag{1.9}$$

It is known ([22] Theorem 208) that the necessary and sufficient condition for the method (H, μ_n) to be conservative is the existence of a mass function $\chi(u)$ defined over closed interval $(0, 1)$ such that

(i) $\chi(u)$ is a function of bounded variation over $(0, 1)$.

(ii) $\mu_n = \int_0^1 u^n . d\chi(u)$ $(n = 0, 1, 2....)$

We may suppose without loss of generality that $\chi(o) = 0$. If further $\chi(u)$ satisfies the conditions

(iii) $\chi(0+) = \chi(o) = o$

(iv) $\chi(1) = 1$

then

μ_n is a regular moment constant and (H, μ_n) a regular Hausdorff transformation.

Further $\chi(u)$ is called a regular mass function if it satisfies conditions (i) to (iv) .

By simple computation we get from (1.8) the Hausdorff mean $\{t_n\}$ of a sequence $\{S_n\}$ corresponding to mass function $\chi(u)$ as

$$t_n = \sum_{k=0}^{n} \left\{ \int_0^1 \binom{n}{k} u^k (1-u)^{n-k} d\chi(u) \right\} S_k \tag{1.10}$$

By writing Hardy-Littlewood series or in short HL-series , we mean the series

$$\sum_{n=1}^{\infty} \frac{S_n(x) - f(x)}{n} \tag{1.11}$$

Hardy and Littlewood [25] have shown that the series in (1.11) is summable $(C, 1)$ to the value

$$\frac{1}{\pi} \int_{0+}^{\pi} \left\{ \frac{\pi - u}{2} \cot \frac{u}{2} - \log \left(2 \sin \frac{u}{2} \right) \right\} \varphi_x(u) \, du$$

whenever the integral

$$\int_{0+}^{\pi} \varphi_x(u)\frac{1}{2}\cot\frac{u}{2}\,du \tag{1.12}$$

exists .

Further [25] , see also ([51] , p.122) if

$$\int_0^t |\varphi_x(u)|\,du = 0(t) \text{ as } t \to 0+$$

then (1.11) converges if and only if (1.12) exists . The interest in HL series lies in its relation to the integral (1.12) exists . Further [25], see also ([51] , p. 122) , these relations being very similar to those between the conjugate series and the integral

$$\int_{0+}^{\pi} \frac{\psi_x(u)}{u}\,du \tag{1.13}$$

where $\psi_x(u) = \frac{1}{2}[f(x+u) - f(x-u)]$.

It is known [51] that if $f \in L$ then (1.13) exists almost every where .

On the other hand there exists a continuous function f for which the integral (1.12) diverges for almost all x [25] , At this stage we remark that the above results on HL series remain unaltered if we replace the HL series by

$$\frac{c_0}{2} + \sum_{n=1}^{\infty} \frac{S_n^*(x) - f(x)}{n} \tag{1.14}$$

where

$$c_0 = \frac{2}{\pi}\int_0^{\pi} \varphi_x(u)\cdot\frac{u}{2}\cdot\cot\frac{u}{2}\cdot du$$

The series (1.14) is summable $(C, 1)$ to the value

$$\int_{0+}^{\pi} \varphi_x(u) \frac{1}{2} \cot \frac{u}{2} \, du$$

whenever the integral exists .

Thus the convergence or summablity problems of (1.14) is same as that of (1.11) though their sums are different and hence we may call (1.14) as an HL series .

2   Introduction and Statement of the Theorem

It was Alexits [1] who initiated the work on the degree of approximation of functions of the H_α class by the Cesáro means of their Fourier series in the sup.norm. The degree of approximation of functions in H_α by Fejer means of their Fourier series in the Hölder metric was first studied by Prösdorf [42]. Chandra [9] obtained a generalisation of Prösdorf's result in the Nörlund transform set up . Later Mohpatra and Chandra [19] obtained a number of results on the degree of the approximation problem in the Hölder metric using matrix transforms which generalise all the previous results based on Cesáro and Nörlund transforms. Chandra [14] studied the degree of approximation problems of the functions of the H_α class in the Hölder metric by their Fourier series using Borel's expotential means.

The object of the present chapter is to study the degree of approximation of some functions associated with the HL series (1.14) by using Hausdorff means in the Hölder metric . We prove the following theorem.

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

Statement of the Theorem : Suppose that the mass function $\chi(u)$ of Hausdorff

method satisfies the following additional conditions .

(i) $\chi(u)$ is absolutely continuous over interval $(0,1)$.

(ii) $\chi^1(u)$ is positive and $\chi^1 \uparrow$ in $(0,1)$

and (iii) $T_n(x)$ be the nth partial sum of the HL series (1.14) and $H_n(g_x, \chi)$ be the

nth Hausdorff mean of $T_n(x)$.

Then for $f \in H_\alpha$ and $0 \le \beta < \alpha \le 1$,

$$\|H_n(g_x, \chi) - g_x(o)\|_\beta = O(1)\frac{1}{n^{\alpha-\beta}}\left[\left|\int_{\frac{1}{n}}^1 \frac{\chi(y)dy}{y^{\alpha-\beta+1}} + \int_{\frac{1}{n}}^1 \frac{\chi(1)-\chi(1-y)}{y^{\alpha-\beta+1}}\,dy\right|\right]$$

$$+ O(1)\frac{1}{n^{\alpha-\beta}}\int_{\frac{1}{n}}^{1-\frac{1}{n}} \frac{\chi^1(u)du}{[u(1-u)]^{\alpha-\beta}} \qquad (2.1)$$

Before we take up the proof , we exhibit below the Fourier character of HL series

(1.14). From (1.6) we write

$$g_x(t) = \int_t^\pi \varphi_x(u)\frac{1}{2}\cot\frac{u}{2}\,du$$

It is known [23] that g_x is an even function and g_x is Lebesgue Integrable . Let

$$g_x(t) \sim \frac{c_0}{2} + \sum_{n=1}^\infty c_n \cos nt \qquad (2.2)$$

We have

$$c_0 = \frac{2}{\pi}\int_0^\pi g_x(t)\,dt$$

$$= \frac{2}{\pi}\int_0^\pi \left\{\int_t^\pi \varphi_x(u)\frac{1}{2}\cot\frac{u}{2}\,du\right\}\,dt$$

$$= \frac{2}{\pi}\int_0^\pi \varphi_x(u)\frac{1}{2}\cot\frac{u}{2}\,du\int_0^u\,dt$$

$$= \frac{2}{\pi}\int_0^\pi \varphi_x(u)\frac{u}{2}\cdot\cot\frac{u}{2}\,du \qquad (2.3)$$

- - -

and for $n \geq 1$

$$
\begin{aligned}
c_n &= \frac{2}{\pi} \int_0^\pi g_x(t) \cos nt \; dt \\
&= \frac{2}{\pi} \int_0^\pi \cos nt \left\{ \int_t^\pi \varphi_x(u) \frac{1}{2} \cot \frac{u}{2} \; du \right\} dt \\
&= \frac{2}{\pi} \int_0^\pi \varphi_x(u) \frac{1}{2} \cot \frac{u}{2} \; du \int_0^u \cos nt \; dt \\
&= \frac{2}{\pi n} \int_0^\pi \frac{\varphi_x(u) \sin nu \; du}{2 \tan \frac{u}{2}} \\
&= \frac{S_n^*(x) - f(x)}{n} \quad\quad\quad\quad (2.4)
\end{aligned}
$$

Thus we have

Proposition : The HL series (1.14) is the Fourier series of the even function $g_x(u)$

at $u = 0$.

In these circumstances

$$
\begin{aligned}
T_n(x) &= \frac{c_0}{2} + \sum_{k=1}^n c_k \\
&= \frac{2}{\pi} \int_0^\pi g_x(u) D_n(u) \; du \quad\quad\quad\quad (2.5)
\end{aligned}
$$

where

$$
D_n(u) = \frac{\sin\left(n + \frac{1}{2}\right) u}{2 \sin \frac{u}{2}} \quad\quad\quad\quad (2.6)
$$

3   Additional Notations and lemmas

We need the following additional notations for the proof of our theorem .

$$g_x^*(t) = \int_0^t \varphi_x(u) \frac{1}{2} \cot \frac{u}{2} \, du \qquad (3.1)$$

$$G(t) = g_x^*(t) - g_y^*(t) \qquad (3.2)$$

$$l_n(x) = H_n(g_x, \chi) - g_x(o) \qquad (3.3)$$

For $0 \leq u \leq 1$ and $0 \leq t \leq \pi$

$$R(u, t) = |1 - u + ue^{it}| \qquad (3.4)$$

$$\odot = \tan^{-1} \frac{u \sin t}{1 - u + u \cos t} \qquad (3.5)$$

$$H_n(t) = \sum_{k=0}^n \binom{n}{k} D_k(t) . \frac{1}{\pi} \int_0^1 u^k (1-u)^{n-k} . d\chi(u) \qquad (3.6)$$

$$Q_n^r(t) = \frac{1}{2\pi} \int_0^1 R^n(u, t) \cos n \odot d\chi(u) \qquad (3.7)$$

$$Q_n^i(t) = \frac{1}{2\pi} \int_0^1 R^n(u, t) \sin n \odot d\chi(u) \qquad (3.8)$$

$$H_n(t) = Q_n^r(t) + Q_n^i(t) . \cot \ t/2 \qquad (3.9)$$

$$E_n(u, t) = e^{cnu(1-u)t^2} \qquad (3.10)$$

$f \uparrow$ to denote f is non decreasing

$f \downarrow$ to denote f is non increasing

LEMMAS

Lemma 1 : Let $f \in H_\alpha, 0 \leq \beta < \alpha \leq 1$

(i) $\varphi_x(t) - \varphi_y(t) = 0(1) \begin{cases} t^\alpha \\ \\ |x-y|^\alpha \end{cases}$

(ii) $\varphi_x(t) - \varphi_y(t) = O(1)|x-y|^\beta . t^{\alpha-\beta}$

(iii) $G(t) = O(1)|x-y|^\beta . t^{\alpha-\beta}$

Proof of ((i) and (ii)) are easy and follows from the definition Of $\varphi_x(t)$.

Proof of (iii): Using (3.2) and (3.1)

$$G(t) = \int_0^t \{\varphi_x(u) - \varphi_y(u)\} \frac{1}{2} \cot \frac{u}{2} \, du$$

$$= O(1) \int_0^t |x-y|^\beta . u^{\alpha-\beta-1} . du \quad \text{(By use of Lemma 1 (ii))}$$

$$= O(1)|x-y|^\beta . t^{\alpha-\beta}$$

This completes the proof of the Lemma 1 (iii) .

Lemma 2 : [28] For $0 \leq u \leq 1, 0 \leq t \leq \pi$ and $c > 0$.

(i) $R^n(u, t) = O(1)e^{-cnu(1-u)t^2}$

(ii) $H_n(t) = O(n)$

(iii) $H_n(t) = O(1)\frac{1}{t} \int_0^1 e^{-cnu(1-u)t^2} . d\chi(u)$

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

Lemma 3 : [48] For small $t \in (0, \pi)$ and fixed δ_0

$$\odot = ut + Au(1 - u)t^3$$

where $|A| \le \delta_0$ and $\odot$ is defined in (3.5) .

Lemma 4 : For small $t \in (0, \pi)$

$$(i) \quad \sin n \odot - \sin nut = O(1)nu(1 - u)t^3$$

$$(ii) \quad \cos n \odot - \cos nut = O(1)nu(1 - u)t^3$$

Proof of (i) :

$$|\sin n \odot - \sin nut|$$

$$= \left| 2 \cos \frac{n \odot + nut}{2} . \sin \frac{n \odot - nut}{2} \right| .$$

$$\le n|\odot - ut|$$

$$= O(1)nu(1 - u)t^3 \quad \text{By lemma 2}$$

We omit the proof of Lemma 4 (ii) as it can be proved by using arguments similar to those used in proving lemma 4 (i) .

Lemma 5 : For $0 \le \beta \le 1, 0 \le u \le 1$ and $c > 0$

$$e^{-cnu(1-u)t^2} = O(1)\frac{1}{n^\beta} \left[\frac{1}{[u(1 - u)t^2]^\beta} \right]$$

Proof : We have

$$E_n(u, t) = e^{-cnu(1-u)t^2} \geq 1 \tag{3.11}$$

and

$$E_n(u, t) = e^{-cnu(1-u)t^2} > cnu(1 - u)t^2 \tag{3.12}$$

Writing

$$E_n(u, t) = [E_n(u, t)]^{1-\beta} \cdot [E_n(u, t)]^{\beta} \quad (0 \leq \beta \leq 1)$$

and using (3.11) and (3.12) we obtain

$$E_n(u, t) > 1^{1-\beta} \left[cnu(1 - u)t^2 \right]^{\beta} \tag{3.13}$$

Now using (3.13) we get

$$\frac{1}{E_n(u, t)} = e^{-cnu(1-u)t^2}$$

$$< \frac{1}{[cnu(1 - u)t^2]^{\beta}} \quad (0 \leq \beta \leq 1)$$

$$= O(1)\frac{1}{n^{\beta}} \left[\frac{1}{[u(1 - u)t^2]^{\beta}} \right]$$

Hence the proof .

Lemma 6 : For $0 \leq \beta < \alpha \leq 1, 0 \leq u \leq 1, c > 0$ and $k = 1, 2, 3....$

$$\int_{U_1}^{U_2} \theta^{\frac{k+\alpha-\beta}{2}} \cdot e^{-c\theta} \cdot d\theta = O(1) \begin{cases} n^{\frac{k+\alpha-\beta}{2}} \cdot [u(1 - u)]^{\frac{k+\alpha-\beta}{2}} \\ n^{\frac{k-\alpha+\beta}{2}} \cdot [u(1 - u)]^{\frac{k-\alpha+\beta}{2}} \end{cases}$$

where $U_1 = \pi^2 u(1 - u) \cdot n^{-1}, U_2 = \delta^2 u(1 - u)n$ and δ is a fixed number between 0 and π.

Proof :

$$\int_{U_1}^{U_2} \theta^{\frac{k+\alpha-\beta}{2}} . e^{-c\theta} . d\theta$$

$$\leq U_2^{\frac{k+\alpha-\beta}{2}} \int_{U_1}^{U_2} . e^{-c\theta} . d\theta$$

$$\leq U_2^{\frac{k+\alpha-\beta}{2}} \int_0^{\infty} . e^{-c\theta} . d\theta$$

$$= O(1) U_2^{\frac{k+\alpha-\beta}{2}}$$

$$= O(1) n^{\frac{k+\alpha-\beta}{2}} . [u(1-u)]^{\frac{k+\alpha-\beta}{2}} \qquad (3.14)$$

Again

$$\int_{U_1}^{U_2} \theta^{\frac{k+\alpha-\beta}{2}} . e^{-c\theta} . d\theta$$

$$= \int_{U_1}^{U_2} \theta_2^{\frac{k-\alpha+\beta}{2}} . \left(\theta^{\alpha-\beta} . e^{-c\theta} \right) . d\theta$$

$$\leq U_2^{\frac{k-\alpha+\beta}{2}} \int_{U_1}^{U_2} . \theta^{\alpha-\beta} . e^{-c\theta} . d\theta$$

$$= O(1) U_2^{\frac{k-\alpha+\beta}{2}}$$

$$= O(1) n^{\frac{k-\alpha+\beta}{2}} . [u(1-u)]^{\frac{k-\alpha+\beta}{2}} \qquad (3.15)$$

Proof of the lemma follows from (3.14) and (3.15) .

Lemma 7 : Let

(a) $\chi(u)$ be absolutely continuous over interval $(0, 1)$.

(b) $\chi^1(u)$ be positive in the interval $(0, 1)$

Then for $0 \le \beta < \alpha \le 1$

(i) $\chi\left(\dfrac{1}{n}\right) = O(1)\dfrac{1}{n^{\alpha-\beta}} \displaystyle\int_{\frac{1}{n}}^{1} \dfrac{\chi(y)}{y^{\alpha-\beta+1}}\, dy$

(ii) $\chi(1) - \chi\left(1 - \dfrac{1}{n}\right) = O(1)\dfrac{1}{n^{\alpha-\beta}} \displaystyle\int_{\frac{1}{n}}^{1} \dfrac{\chi(1) - \chi(1-y)}{y^{\alpha-\beta+1}}\, dy$

(iii) $\dfrac{1}{n^{\alpha-\beta}} \displaystyle\int_{\frac{1}{n}}^{1} \dfrac{\chi^1(1-y)}{y^{\alpha-\beta}}\, dy = O(1)\dfrac{1}{n^{\alpha-\beta}} \displaystyle\int_{\frac{1}{n}}^{1} \dfrac{\chi(1) - \chi(1-y)}{y^{\alpha-\beta+1}}\, dy$

Proof of (i) : we have

$$\dfrac{1}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1} \dfrac{\chi^1(y)\, dy}{y^{\alpha-\beta}}$$

$$= \dfrac{1}{n^{\alpha-\beta}} \left[\dfrac{x(y)}{y^{\alpha-\beta}}\right]_{\frac{1}{n}}^{1} + \dfrac{\alpha-\beta}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1} \dfrac{\chi^1(y)\, dy}{y^{\alpha-\beta+1}}$$

$$= \dfrac{1}{n^{\alpha-\beta}} - x\left(\dfrac{1}{n}\right) + \dfrac{\alpha-\beta}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1} \dfrac{\chi^1(y)\, dy}{y^{\alpha-\beta+1}}$$

whence we get

$$\chi\left(\dfrac{1}{n}\right) = \dfrac{1}{n^{\alpha-\beta}} + \dfrac{\alpha-\beta}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1} \dfrac{\chi^1(y)\, dy}{y^{\alpha-\beta+1}} - \dfrac{1}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1} \dfrac{\chi^1(y)\, dy}{y^{\alpha-\beta}}$$

$$= O(1)\dfrac{1}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1} \dfrac{\chi^1(y)\, dy}{y^{\alpha-\beta+1}}$$

$($ since $\chi^1(u) > 0)$

This completes the proof of the lemma 7(i) . We omit the proof of lemma 7((ii) and

(iii)) as one can prove them using, arguments similar to those used in proving lemma

7 (i) and the relation

$$\frac{1}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1} \frac{\chi^1(1-y)}{y^{\alpha-\beta}} \, dy$$

$$= \frac{1}{n^{\alpha-\beta}} + \frac{\alpha-\beta}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1} \frac{\chi(1) - \chi(1-y)}{y^{\alpha-\beta+1}} \, dy$$

$$- \left[\chi(1) - \chi\left(1 - \frac{1}{n}\right) \right]$$

Lemma 8 : For fixed $t \in (0, \pi)$ and $0 \le u \le 1$. Let

(a) $\chi(u)$ be absolutely continuous over interval $(0, 1)$.

(b) $\chi^1(u)$ be positive in the interval $(0, 1)$

Then for $0 \le \beta < \alpha \le 1$ and $c > 0$

$$\int_0^1 e^{-cnu(1-u)t^2} . d\chi(u)$$

$$= O(1) \left[\chi\left(\frac{1}{n}\right) + \left\{ \chi(1) - \chi\left(1 - \frac{1}{n}\right) \right\} \right]$$

$$+ O(1) \frac{1}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1-\frac{1}{n}} \frac{\chi^1(u) \, du}{[u(1-u)]^{\alpha-\beta}}$$

Proof :

$$\int_0^1 e^{-cnu(1-u)t^2} . d\chi(u)$$

$$= \left[\int_0^{\frac{1}{n}} + \int_{\frac{1}{n}}^{1-\frac{1}{n}} + \int_{1-\frac{1}{n}}^{1} \right] e^{-cnu(1-u)t^2} . d\chi(u)$$

$$= K_1 + K_2 + K_3 \quad \text{(say)}$$

Using the fact that $e^{-cnu(1-u)t^2} \leq 1$ for K_1 and K_3

we get

$$K_1 = O(1)x\left(\frac{1}{n}\right)$$

$$K_3 = O(1)\left\{x(1) - x\left(1 - \frac{1}{n}\right)\right\}$$

Using lemma 5 for K_2 we obtain

$$K_2 = O(1)\frac{1}{n^{\alpha-\beta}}\int_{\frac{1}{n}}^{1-\frac{1}{n}}\frac{\chi^1(u)\,du}{[u(1-u)]^{\alpha-\beta}}$$

(since $0 \leq \alpha - \beta \leq 1$ and t is fixed) Collecting the estimate for K_1, K_2 and K_3 we

obtain the result .

lemma 9 : For $t > \dfrac{\pi}{n}$ and $h = \dfrac{\pi}{nt}$, Let

(a) $\chi(u)$ be absolutely continuous over interval $(0, 1)$.

(b) $\chi^1(u)$ be positive and $\chi^1 \uparrow$ in $(0, 1)$

Then

(i) $\displaystyle\int_0^1 \chi^1(u)R^n(u, t)\sin nut\,du$

$$= O(1)\left[x\left(\frac{\pi}{nt}\right) + \left\{x(1) - x\left(1 - \frac{\pi}{nt}\right)\right\} + \frac{\chi^1\left(1 - \frac{\pi}{nt}\right)}{nt}\right]$$

(ii) $\displaystyle\int_0^1 \chi^1(u)R^n(u, t)\cos nut\,du$

$$= O(1)\left[x\left(\frac{\pi}{nt}\right) + \left\{x(1) - x\left(1 - \frac{\pi}{nt}\right)\right\} + \frac{\chi^1\left(1 - \frac{\pi}{nt}\right)}{nt}\right]$$

Proof of (i) :

$$\int_0^1 \chi^1(u) R^n(u,t) \sin nut \; du$$

$$= \left[\int_0^h + \int_h^{1-h} + \int_{1-h}^1\right] \chi^1(u) R^n(u,t) \sin nut \; du$$

$$= M_1 + M_2 + M_3 \quad \text{(say)}$$

Using $|R^n(u,t) \sin nut| \leq 1$ for M_1 and M_3, we get

$$M_1 = O(1) \chi\left(\frac{\pi}{nt}\right)$$

$$M_3 = O(1) \left[\chi(1) - \chi\left(1 - \frac{\pi}{nt}\right)\right]$$

Again if $h = \dfrac{\pi}{nt} < \dfrac{1}{2}$, we have

$$M_2 = \left[\int_h^{\frac{1}{2}} + \int_{\frac{1}{2}}^{1-h}\right] \chi^1(u) R^n(u,t) \sin nut \; du$$

$$= M_{21} + M_{22} \quad \text{(say)}$$

in case $h = \dfrac{\pi}{nt} > \dfrac{1}{2}$, we need not split the integrable M_2.

Case I : For $h = \dfrac{\pi}{nt} < \dfrac{1}{2}$

$$M_{21} = \int_h^{\frac{1}{2}} \chi^1(u) R^n_-(u,t) \sin nut \; du$$

$$= \chi^1\left(\frac{1}{2}\right) \int_\xi^{\frac{1}{2}} R^n(u,t) \sin nut \; du$$

$$= \chi^1\left(\frac{1}{2}\right) R^n(\xi,t) \int_\xi^n \sin nut \; du$$

$$= O(1)\frac{\chi^1\left(\frac{1}{2}\right)}{nt}$$

$$\left(\text{since } \chi^1 \uparrow \text{ and } R^n(u,t) \downarrow u \in \left(h, \frac{1}{2}\right)\right)$$

$$M_{22} = \int_{\frac{1}{2}}^{1-h} \chi^1(u) R^n(u,t) \sin nut \, du$$

$$= \chi^1(1-h).R^n(1-h,t) \int_{\xi^1}^{1-h} \sin nut \, du$$

$$= O(1)\frac{\chi^1(1-h)}{nt} = O(1)\frac{\chi^1\left(1-\frac{\pi}{nt}\right)}{nt}$$

Collecting the estimates for M_{21} and M_{22} we obtain

$$M_{21} + M_{22} = O(1)\frac{\chi^1\left(1-\frac{\pi}{nt}\right)}{nt}$$

Case II : For $h = \dfrac{\pi}{nt} > \dfrac{1}{2}$, we have the single integral

$$M_2 = \int_{h}^{1-h} \chi^1(u) R^n(u,t) \sin nut \, du$$

$$= O(1)\frac{\chi^1\left(1-\frac{\pi}{nt}\right)}{nt}$$

From case (I and II) we get

$$M_2 = O(1)\frac{\chi^1\left(1-\frac{\pi}{nt}\right)}{nt}$$

Collecting the estimates for M_1, M_2 and M_3 we obtain the result .

This completes the proof of lemma 9(i) .

We omit the proof of lemma 9 (ii) as it can be proved by using arguments similar those used in proving lemma 9 (i) .

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

4   Proof of the Theorem

Denoting the Hausdorff mean of the HL series by $H_n(g_x, \chi)$ and using (2.5) we get

$$
\begin{aligned}
H_n(g_x, \chi) &= \sum_{k=0}^{n} \left\{ \int_0^1 \binom{n}{k} u^k (1-u)^{n-k} . d\chi(u) \right\} T_k(x) \\
&= \frac{2}{\pi} \int_0^\pi g_x(t) dt \sum_{k=0}^{n} \binom{n}{k} D_k(t) \int_0^1 u^k (1-u)^{n-k} \, d\chi(u) \\
&= 2 \int_0^\pi g_x(t) H_n(t) \, dt \qquad\qquad (4.1)
\end{aligned}
$$

Where $H_n(t)$ is defined in (3.6) . $H_n(t)$ is called the Hausdorff Kernel .

As

$$
\int_0^\pi H_n(t) \, dt = \frac{1}{2}
$$

From (4.1) it follows that

$$
\begin{aligned}
l_n(x) &= H_n(g_x, \chi) - g_x(o) \\
&= 2 \int_0^\pi [g_x(t) - g_x(o)] H_n(t) \, dt \\
&= -2 \int_0^\pi g_x^*(t) H_n(t) \, dt
\end{aligned}
$$

Therefore

$$
\begin{aligned}
l_n(x) - l_n(y) &= -2 \int_0^\pi [g_x^*(t) - g_y^*(t)] H_n(t) \, dt \\
&= -2 \int_0^\pi G(t) . H_n(t) \, dt \quad \text{(By use of (3.2))} \\
&= -2 \left[\int_0^{\pi/n} + \int_{\pi/n}^\delta + \int_\delta^\pi \right] G(t) H_n(t) \, dt \\
&= -2[I + J + K] \quad \text{(say)} \qquad\qquad (4.2)
\end{aligned}
$$

where δ is positive, (sufficiently small) and kept fixed.

Using lemma 1 (iii) and lemma 2 (ii), we get

$$I = O(1)|x - y|^\beta . n \int_0^{\pi/n} t^{\alpha-\beta} . dt$$

$$= O(1)\frac{|x - y|^\beta}{n^{\alpha-\beta}}, \qquad 0 < \alpha \le 1 \tag{4.3}$$

Since $\dot{\chi}(u)$ is absolutely continuous over interval $(0, 1)$ and $\chi^1(u) > 0$, using lemma 1 (iii), Lemma 2(iii) and Lemma 8, we get

$$K = O(1)|x - y|^\beta \int_0^1 \chi^1(u)\, du \int_\delta^\pi \frac{t^{\alpha-\beta}}{t} . e^{-cnu(1-u)t^2} . dt$$

$$= O(1)|x - y|^\beta \int_0^1 \chi^1(u) du . e^{-cnu(1-u)\delta^2}$$

$$= O(1)|x - y|^\beta \left[\chi\left(\frac{1}{n}\right) + \left\{ \chi(1) - \chi\left(1 - \frac{1}{n}\right) \right\} \right]$$

$$= O(1)\frac{|x - y|^\beta}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1-\frac{1}{n}} \frac{\chi^1(u) du}{[u(1 - u)]^{\alpha-\beta}} \tag{4.4}$$

Using (3.9), (3.7) and (3.8) respectively for $H_n(t)$, $Q_n^r(t)$ and $Q_n^i(t)$ we get from (4.1)

$$J = \int_{\frac{\pi}{n}}^{\delta} G(t)\left(Q_n^r(t) + \cot\frac{t}{2}Q_n^i(t)\right) dt$$

$$= \int_{\frac{\pi}{n}}^{\delta} G(t)\left\{\frac{1}{2\pi}\int_0^1 R^n(u,t)\cos n\odot d\chi(u)\right\} dt$$

$$+ \int_{\frac{\pi}{n}}^{\delta} G(t)\cot\frac{t}{2}\left\{\frac{1}{2\pi}\int_0^1 R^n(u,t)\sin n\odot d\chi(u)\right\} dt$$

$$= J_1 + J_2 \quad \text{(say)} \tag{4.5}$$

$$J_2 = \int_{\frac{\pi}{n}}^{\delta} G(t)\cot\frac{t}{2}\,dt\frac{1}{2\pi}\int_0^1 R^n(u,t)(\sin n\odot - \sin nut)\,d\chi(u)$$

$$+ \int_{\frac{\pi}{n}}^{\delta} G(t)\cot\frac{t}{2}\,dt\frac{1}{2\pi}\int_0^1 R^n(u,t)\sin nut\,d\chi(u)$$

$$= J_{21} + J_{22} \quad \text{(say)} \tag{4.6}$$

Using lemma 1 (iii) , lemma 2 (i) and lemma 4(i) we get

$$J_{21} = O(1)|x-y|^\beta \int_0^1 \chi^1(u)du \int_{\pi/n}^{\delta} t^{\alpha-\beta-1}.e^{-cnu(1-u)t^2}.nu(1-u)t^3.dt$$

whence putting $nu(1-u)t^2 = \theta$ and writing

$$U_1 = \pi^2 u(1-u).n^{-1}, U_2 = \delta^2 u(1-u)n,$$

we obtain

$$J_{21} = O(1)\frac{|x-y|^\beta}{n^{\frac{\alpha-\beta+1}{2}}}\int_0^1 \frac{\chi^1(u)du}{[u(1-u)]^{\frac{\alpha-\beta+1}{2}}}\int_{U_1}^{U_2}\theta^{\frac{\alpha-\beta+1}{2}}.e^{-c\theta}.d\theta$$

$$= O(1)\frac{|x-y|^\beta}{n^{\frac{\alpha-\beta+1}{2}}}\int_0^{\frac{1}{n}}\frac{\chi^1(u)du}{[u(1-u)]^{\frac{\alpha-\beta+1}{2}}}\int_{U_1}^{U_2}\theta^{\frac{\alpha-\beta+1}{2}}.e^{-c\theta}.d\theta$$

$$+ O(1)\frac{|x-y|^\beta}{n^{\frac{\alpha-\beta+1}{2}}}\int_{\frac{1}{n}}^{1-\frac{1}{n}}\frac{\chi^1(u)du}{[u(1-u)]^{\frac{\alpha-\beta+1}{2}}}\int_{U_1}^{U_2}\theta^{\frac{\alpha-\beta+1}{2}}.e^{-c\theta}.d\theta$$

$$+ O(1)\frac{|x-y|^\beta}{n^{\frac{\alpha-\beta+1}{2}}}\int_{1-\frac{1}{n}}^{1}\frac{\chi^1(u)du}{[u(1-u)]^{\frac{\alpha-\beta+1}{2}}}\int_{U_1}^{U_2}\theta^{\frac{\alpha-\beta+1}{2}}.e^{-c\theta}.d\theta$$

$$= l_1 + l_2 + l_3 \quad \text{(say)} \tag{4.7}$$

$\cdots$

Using first estimate of lemma 6 (taking $k = 1$), we get

$$l_1 = O(1)|x - y|^\beta x\left(\frac{1}{n}\right) \tag{4.8}$$

$$l_3 = O(1)|x - y|^\beta \left[\chi(1) - x\left(1 - \frac{1}{n}\right)\right]$$

Using second estimate of lemma 6 (taking $k = 1$), we get

$$l_2 = O(1)\frac{|x - y|^\beta}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1-\frac{1}{n}} \frac{\chi^1(u)\, du}{[u(1-u)]^{\alpha-\beta}} \tag{4.9}$$

Collecting the estimates for l_1, l_2 and l_3

We obtain

$$J_{21} = O(1)|x - y|^\beta \left[\chi\left(\frac{1}{n}\right) + \left\{\chi(1) - x\left(1 - \frac{1}{n}\right)\right\}\right]$$

$$+ O(1)\frac{|x - y|^\beta}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1-\frac{1}{n}} \frac{\chi^1(u)du}{[u(1-u)]^{\alpha-\beta}} \tag{4.10}$$

For $t > \frac{\pi}{n}$, we write $h = \frac{\pi}{nt}$.

We now proceed to deal with J_{22}. From (4.6), using lemma 1 (iii) and lemma 9 (i),

we have

$$J_{22} = O(1)|x - y|^\beta \int_{\pi/n}^{\delta} t^{\alpha-\beta-1}.dt. \left[\chi\left(\frac{\pi}{nt}\right) + \left\{\chi(1) - x\left(1 - \frac{\pi}{nt}\right)\right\}\right]$$

$$+ O(1)|x - y|^\beta \int_{\pi/n}^{\delta} t^{\alpha-\beta-1}.\frac{\chi^1\left(1 - \frac{\pi}{nt}\right)}{nt}\, dt$$

whence putting $t = \dfrac{\pi}{ny}$ we obtain

$$
\begin{aligned}
J_{22} &= O(1)|x-y|^\beta \int_{\frac{\pi}{\delta n}}^1 \left(\frac{\pi}{ny}\right)^{\alpha-\beta-1} [\chi(y) + \{\chi(1) - \chi(1-y)\}] \frac{dy}{ny^2} \\
&+ O(1)|x-y|^\beta \int_{\frac{\pi}{\delta n}}^1 \left(\frac{\pi}{ny}\right)^{\alpha-\beta-1} \cdot \chi^1(1-y).y.\frac{dy}{ny^2} \\
&= O(1)\frac{|x-y|^\beta}{n^{\alpha-\beta}} \left[\int_{\frac{1}{n}}^1 \frac{\chi(y)dy}{y^{\alpha-\beta+1}} + \int_{\frac{1}{n}}^1 \frac{\chi(1) - \chi(1-y)}{y^{\alpha-\beta+1}} dy + \int_{\frac{1}{n}}^1 \frac{\chi^1(1-y)}{y^{\alpha-\beta}} dy \right]
\end{aligned}
$$

$$(4.11)$$

Combining the result from (4.6) , (4.10) , (4.11) and using lemma 7 we obtain

$$
\begin{aligned}
J_2 &= O(1)\frac{|x-y|^\beta}{n^{\alpha-\beta}} \left[\int_{\frac{1}{n}}^1 \frac{\chi(y)dy}{y^{\alpha-\beta+1}} + \int_{\frac{1}{n}}^1 + \frac{\chi(1) - \chi(1-y)}{y^{\alpha-\beta+1}} dy \right] \\
&+ O(1)\frac{|x-y|^\beta}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1-\frac{1}{n}} \frac{\chi^1(u)\, du}{[u(1-u)]^{\alpha-\beta}}
\end{aligned}
$$

$$(4.12)$$

Now we proceed to deal with J_1 .Collecting from (4.5) we write J_1 as

$$
\begin{aligned}
J_1 &= \frac{1}{2\pi} \int_{\frac{\pi}{n}}^\delta G(t) \left\{ \int_0^1 R^n(u,t)\,(\cos n \odot - \cos nut)\, d\chi(u) \right\} dt \\
&+ \frac{1}{2\pi} \int_{\frac{\pi}{n}}^\delta G(t) \left\{ \int_0^1 R^n(u,t) \cos nut\, d\chi(u) \right\} dt \\
&= J_{11} + J_{12} \quad \text{(say)}
\end{aligned}
$$

$$(4.13)$$

Using lemma 1 (iii) , Lemma 2 (i) and lemma 4 (ii) for J_{11} we get

$$
\begin{aligned}
J_{11} &= O(1)|x-y|^\beta \int_{\pi/n}^\delta t^{\alpha-\beta}.dt \int_0^1 \chi^1(u).e^{-cnu(1-u)t^2}.nu(1-u)t^3.du \\
&= O(1)|x-y|^\beta \int_0^1 \chi^1(u)\, du \int_{\pi/n}^\delta t^{\alpha-\beta}.e^{-cnu(1-u)t^2}.nu(1-u)t^3.dt
\end{aligned}
$$

whence putting $nu(1-u)t^2 = \theta$ and writing

$$U_1 = \pi^2 u(1-u).n^{-1}, U_2 = \delta^2 u(1-u).n$$

We obtain

$$J_{11} = O(1)\frac{|x-y|^\beta}{n^{\frac{|\alpha-\beta|+2}{2}}} \int_0^1 \frac{\chi^1(u)du}{[u(1-u)]^{\frac{|\alpha-\beta|+2}{2}}} \int_{U_1}^{U_2} \theta^{\frac{|\alpha-\beta|+2}{2}}.e^{-c\theta}.d\theta$$

$$= O(1)\frac{|x-y|^\beta}{n^{\frac{|\alpha-\beta|+2}{2}}} \left[\int_0^{\frac{1}{n}} + \int_{\frac{1}{n}}^{1-\frac{1}{n}} + \int_{1-\frac{1}{n}}^1\right] \frac{\chi^1(u)du}{[u(1-u)]^{\frac{|\alpha-\beta|+2}{2}}} \int_{U_1}^{U_2} \theta^{\frac{|\alpha-\beta|+2}{2}}.e^{-c\theta}.d\theta$$

$$= L_1 + L_2 + L_3 \quad \text{(say)} \tag{4.14}$$

Using first estimate of lemma 6 for (taking $k=2$) we get

$$L_1 = O(1)|x-y|^\beta \chi\left(\frac{1}{n}\right)$$

$$L_3 = O(1)|x-y|^\beta \left\{\chi(1) - \chi\left(1-\frac{1}{n}\right)\right\} \tag{4.15}$$

Using second estimates of lemma 6 (taking $k=2$) we get

$$L_2 = O(1)\frac{|x-y|^\beta}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1-\frac{1}{n}} \frac{\chi^1(u)du}{[u(1-u)]^{\alpha-\beta}} \tag{4.16}$$

Hence from (4.14) , (4.15) and (4.16) we obtain

$$J_{11} = O(1)|x-y|^\beta \left[\chi\left(\frac{1}{n}\right) + \left\{\chi(1) - \chi\left(1-\frac{1}{n}\right)\right\}\right]$$

$$+ O(1)\frac{|x-y|^\beta}{n^{\alpha-\beta}} \int_{\frac{1}{n}}^{1-\frac{1}{n}} \frac{\chi^1(u)du}{[u(1-u)]^{\alpha-\beta}} \tag{4.17}$$

For $t > \dfrac{\pi}{n}$ we write $h = \dfrac{\pi}{nt}$

From (4.13) using lemma 1 (iii) and Lemma 9 (ii) we have

$$J_{11} = O(1)|x-y|^{\beta} \int_{\pi/n}^{\delta} t^{\alpha-\beta}\left[\chi\left(\frac{\pi}{nt}\right) + \left\{\chi(1) - \chi\left(1 - \frac{\pi}{nt}\right)\right\}\right]\,dt$$

$$+\, O(1)|x-y|^{\beta} \int_{\pi/n}^{\delta} t^{\alpha-\beta}.\frac{\chi^1\left(1 - \frac{\pi}{nt}\right)}{nt}\,dt$$

whence putting $t = \dfrac{\pi}{ny}$, we get

$$J_{12} = O(1)|x-y|^{\beta} \int_{\pi/\delta n}^{1} \left(\frac{\pi}{ny}\right)^{\alpha-\beta}\left[\chi(y) + \{\chi(1) - \chi(1-y)\} + \chi^1(1-y).y\right]\frac{dy}{ny^2}$$

$$= O(1)|x-y|^{\beta} \int_{1/n}^{1} \left(\frac{\pi}{ny}\right)^{\alpha-\beta}\left[\chi(y) + \{\chi(1) - \chi(1-y)\} + \chi^1(1-y).y\right]\frac{dy}{ny^2}$$

$$= O(1)\frac{|x-y|^{\beta}}{n^{\alpha-\beta+1}}\left[\int_{\frac{1}{n}}^{1} \frac{\chi(y)dy}{y^{\alpha-\beta+2}} + \int_{\frac{1}{n}}^{1} \frac{\chi(1)-\chi(1-y)}{y^{\alpha-\beta+2}}\,dy + \int_{\frac{1}{n}}^{1} \frac{\chi^1(1-y)}{y^{\alpha-\beta+1}}\,dy\right]$$

$$= O(1)\frac{|x-y|^{\beta}}{n^{\alpha-\beta}}\left[\int_{\frac{1}{n}}^{1} \frac{\chi(y)dy}{y^{\alpha-\beta+1}} + \int_{\frac{1}{n}}^{1} \frac{\chi(1)-\chi(1-y)}{y^{\alpha-\beta+1}}\,dy + \int_{\frac{1}{n}}^{1} \frac{\chi^1(1-y)}{y^{\alpha-\beta}}\,dy\right]$$

$$(4.18)$$

Combining results from (4.13), (4.17), (4.18) and using lemma 7 we get

$$J_1 = O(1)\frac{|x-y|^{\beta}}{n^{\alpha-\beta}}\left[\int_{\frac{1}{n}}^{1} \frac{\chi(y)dy}{y^{\alpha-\beta+1}} + \int_{\frac{1}{n}}^{1} \frac{\chi(1)-\chi(1-y)}{y^{\alpha-\beta+1}}\,dy + \int_{\frac{1}{n}}^{1} \frac{\chi^1(u)\,du}{[u(1-u)]^{\alpha-\beta}}\right]$$

$$(4.19)$$

Collecting the estimates for $I, K, J(J_1, J_2)$ and using lemma 7 and the fact that

$$\frac{1}{n^{\alpha-\beta}} \le \frac{1}{n^{\alpha-\beta}}\int_{\frac{1}{n}}^{1} \frac{\chi(y)dy}{y^{\alpha-\beta+1}},\ \text{we obtain for}\ 0 \le \beta < \alpha \le 1.$$

$$I_n(x) - I_n(y) = O(1)\frac{|x-y|^{\beta}}{n^{\alpha-\beta}}\left[\int_{\frac{1}{n}}^{1} \frac{\chi(y)dy}{y^{\alpha-\beta+1}} + \int_{\frac{1}{n}}^{1} \frac{\chi(1)-\chi(1-y)}{y^{\alpha-\beta+1}}\,dy + \int_{\frac{1}{n}}^{1-\frac{1}{n}} \frac{\chi^1(u)\,du}{[u(1-u)]^{\alpha-\beta}}\right]$$

$$(4.20)$$

which further ensures that

$$\sup_{\substack{(x,y) \\ [x \neq y]}} (\Delta^\beta I_n(x,y)) = \sup_{\substack{(x,y) \\ [x \neq y]}} \frac{|l_n(x) - l_n(y)|}{|x-y|^\beta}$$

$$= O(1)\frac{1}{n^{\alpha-\beta}}\left[\int_{\frac{1}{n}}^{1}\frac{\chi(y)dy}{y^{\alpha-\beta+1}} + \int_{\frac{1}{n}}^{1}\frac{\chi(1)-\chi(1-y)}{y^{\alpha-\beta+1}}dy + \int_{\frac{1}{n}}^{1-\frac{1}{n}}\frac{\chi^1(u)\,du}{[u(1-u)]^{\alpha-\beta}}\right] \quad (4.21)$$

Also $\varphi_x(t) = 0(t^\alpha)$ by hypothesis and proceeding as above we obtain

$$\|I_n(x)\|_c = \sup_{-\pi \leq x \leq \pi} |l_n(x)|$$

$$= O(1)\frac{1}{n^\alpha}\left[\int_{\frac{1}{n}}^{1}\frac{\chi(y)dy}{y^{\alpha+1}} + \int_{\frac{1}{n}}^{1}\frac{\chi(1)-\chi(1-y)}{y^{\alpha+1}}dy + \int_{\frac{1}{n}}^{1-\frac{1}{n}}\frac{\chi^1(u)\,du}{[u(1-u)]^\alpha}\right]$$

$$(4.22)$$

From (4.21) and (4.22) we obtain the result (2.1) and this completes the proof of the theorem .

REFERENCES

1. (1) Alexists. G. (1961) Convergence Problems of orthogonal series, Pergamon Press.
2. (9) Chandra, P. (1982) "On the generalised Fejer means in the metric of holder space" Math. Nachar, 109 : 39-45
3. (14) Chandra, P. (1990) Degree of approximation of functions in the Holder metric by Borel means, Jour, math Annal. Appl., 149 : 236-246.
4. (25) Hardy, G.H. (1926) The allied series of fourier series. Proc. London math. Soc. 24 : 211-246
5. (23) Hardy, G.H. (1928) Notes on some points in the integral calculus (XVI). The Arithmetic mean of Fourier constant, messenger math. 58 : 50-52.
6. (22) Hardy, G.H. (1956) Divergent Series, Oxford.
7. (28) Hille, E. and Tamarkin, J.D. (1933) On the summability of Fourier series III, Mathematics che- Annalen, 108: 525-577.
8 (37) Mohanty, R. and Ray, B.K. (1969) On the behaviour of a series associated with the Conjugate series of a Fourier series, Canadian Jour, Math. 21. 535-551.
9. (42) Prosdorff, S. (1975) Zur Konvergenz des fourier reifien holder stetiger funkt ionen math nachar, 69 : 7-14
10. (48) Szasz, O. (1950) Gibbs phenomenon for Hausdorff means, Trans. Amer. Math. Soc. 69 440-456.
11. (51) Zygmund, A. (1959) Trigonometric series, Vol 1 . Cambridege.

■■■

STUDIES ON SEASONAL VARIATIONS IN PRIMARY PRODUCTION OF RIVER MAHANADI, BANKI, ODISHA, INDIA

NIRANJAN ROUTRAY[1] AND Dr AJAY KUMAR PATRA[2]

1. Lecturer in Zoology, Banki Autonomous College, Banki, Cuttack, Odisha
2. P.G.Department of Zoology, Utkal University, Bhubaneswar, Odisha, India

ABSTRACT

The primary productivity of the river Mahanadi at Banki has been estimated from January 2012 to December 2012 at three different stations. It varies from to with mean annual production of. The seasonal variation of primary productivity revealed that maximum and minimum values of GPP was associated with summer and winter seasons respectively. The minimum values of NPP were recorded during rainy season and maximum during summer or winter for different study stations. The community respiration showed a systematic seasonal pattern where the maximum value was observed during summer and minimum value during winter. The ratio between NPP and GPP was lowest during rainy season and highest in summer.

INTRODUCTION

Measurement of primary productivity gives information regarding the photosynthetic production of organic matter in an area per unit time and the functional aspects of ecosystem (Odum 1971). It also refers to an assessment about the exact nature of the ecosystem, its trophic status and the availability of energy for secondary producers (Clarke, 1954). Therefore, the measurement of primary production in aquatic environment is of importance not only estimating productivity efficiency but also for aquaculture management. Primary productivity of a water body is its biological production. It plays an important role in an ecosystem as it makes the chemical energy and organic matters for the entire biological community (Saha et al, 1985 and Ahmed et al, 2005). Most of the organic matter of an aquatic ecosystem is produced within the water by phytoplankton (Singh and Singh, 1999; Odum, 1956 and Sahu et al, 1995). When conditions are favourable, the organic matter is produced and the net primary productivity has a positive value, but under unfavourable conditions, the rate of net primary production may fall to zero or even become negative when respiratory losses exceed photosynthetic gains (Yeragi and Shaikh 2003). Photosynthesis is the fundamental process involved in primary production (Singh, 1995) The chlorophyll bearing organisms utilize solar energy and convert it into chemical energy in the form of carbohydrate molecules by taking water and CO_2 from the environment (Mishra and Saxena, 1992).

MATERIALS AND METHODS

The primary productivity estimation depicts the relationship between oxygen evolution and carbon fixation. The light and dark bottle technique with the Winkler's titration method was employed in estimating primary productivity in the present study. Water sample

were collected in three bottle of equal volume, in the middle of every month between 10.00 Am to 12.00 noon. The water sample in the first bottle was used for determining the initial level of dissolved oxygen content immediately following modified Winkler's volumetric method (APHA, 1988). The second bottle was painted black colour (dark bottle) to prevent light penetration and hence serve as control to measure respiration. The third bottle (light) was treated as test to measure the net primary production. The last two bottles were incubated under water in each euphotic zone for a period of three hours by suspending it in water. After the incubation period, dissolved oxygen content (DO_2) of each bottle was estimated. All O_2 values obtained in the present study were converted to Carbon values by multiplying with the factor 0.375 (Odum, 1956). The hourly rate can be converted to daily rates by multiplying with duration of sunshine on that day. Oxygen values (mgl^{-1}) were converted to carbon values by applying the equation by Thomas et al., (1980).

$$\text{Primary productivity (gC)} = \frac{O_2 (mgl^{-1}) \times 0.375}{PQ}$$

Where PQ = 1.25

PQ represent respiratory quotient = Respiration/ photosynthesis and a comprised value of 1.25 was used which represent metabolism of sugar, fat and proteins. The value 0.375 represent a constant to convert Oxygen value to Carbon value (Thomas et al., 1980).

Productivity values were expressed as $gC/m^3/day$, assuming 9 hour photoperiod and were then converted to $gC/m^2/day$ by multiplying by the average water depth.

Table 1. Monthly variations in Primary Productivity ($gC/m^2/day$) of river Mahanadi at Sunadei hill (Upstream, S_1) during 2012

Month & Year	GPP $gC/m^2/day$	NPP $gC/m^2/day$	CR $gC/m^2/day$	NPP:GPP	Respiration as % of GPP	Weather condition
January	1.72±0.063	1.04±0.138	0.68	0.60	39.53	Bright
February	1.47±0.150	1.11±0.145	0.36	0.75	24.48	Bright
March	1.79±0.160	1.29±0.217	0.51	0.72	28.49	Bright & Sunny
April	1.90±0.106	1.44±0.101	0.47	0.75	24.73	Bright & Sunny
May	1.36±0.110	1.05±0.105	0.32	0.74	23.52	Bright & Sunny
June	1.05±0.133	0.68±0.162	0.37	0.64	35.23	Cloudy & Rainy
July	0.92±0.086	0.48±0.118	0.44	0.52	47.82	Cloudy & Rainy
August	0.80±0.078	0.25±0.059	0.54	0.31	67.5	Cloudy & Rainy

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

Month	GPP	NPP	CR	NPP:GPP	Respiration as % of GPP	Weather condition
September	0.95±0.073	0.42±0.037	0.56	0.44	58.94	Cloudy & Rainy
October	1.15±0.149	0.49±0.073	0.65	0.42	56.52	Cloudy
November	1.24±0.278	0.66±0.113	0.59	0.53	47.58	Bright
December	1.59±0.158	1.15±0.133	0.45	0.72	28.30	Bright

Table 2. Monthly variations in Primary Productivity (gC/m²/day) of river Mahanadi at Ranapur (S_2) during, 2012

Month & Year	GPP gC/m²/day	NPP gC/m²/day	CR gC/m²/day	NPP:GPP	Respiration as % of GPP	Weather condition
January	1.90±0.147	1.13±0.211	0.77	0.59	40.52	Bright
February	1.67±0.135	1.21±0.178	0.46	0.72	27.54	Bright
March	1.84±0.302	1.50±0.150	0.34	0.81	18.47	Bright & Sunny
April	2.30±0.281	1.79±0.216	0.51	0.77	22.17	Bright & Sunny
May	1.63±0.251	1.20±0.125	0.43	0.73	26.38	Bright & Sunny
June	1.34±0.155	0.97±0.061	0.37	0.72	27.61	Cloudy & Rainy
July	1.05±0.067	0.67±0.084	0.38	0.63	36.19	Cloudy & Rainy
August	0.90±0.067	0.85±0.088	0.05	0.94	5.55	Cloudy & Rainy
September	1.05±0.109	0.57±0.071	0.48	0.53	45.71	Cloudy & Rainy
October	1.28±0.169	0.60±0.112	0.68	0.46	53.12	Cloudy
November	1.58±0.327	0.76±0.213	0.82	0.48	51.89	Bright
December	1.76±0.202	1.32±0.168	0.44	0.75	25.00	Bright

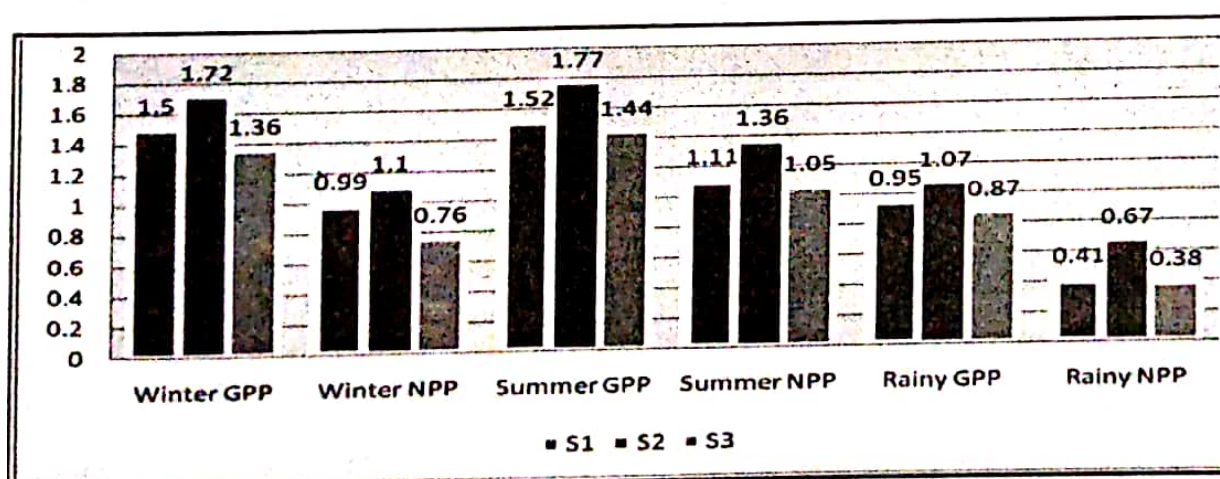Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

Fig.1 Seasonal variations in Primary Productivity (GPP,NPP) at S_1, S_2 & S_3 (Graphical Representation)

Table 3. Monthly variations in Primary Productivity (gC/m²/day) of river Mahanadi at Harirajpur (Downstream, S_3) during, 2012

Month & Year	GPP gC/m²/day	NPP gC/m²/day	CR gC/m²/day	NPP:GPP	Respiration as % of GPP	Weather condition
			2012			
January	1.56±0.226	0.87±0.144	0.69	0.55	44.23	Bright
February	1.30±0.222	0.94±0.097	0.36	0.72	27.69	Bright
March	1.70±0.186	1.33±0.252	0.37 Sunny	0.78	21.76	Bright &
April	1.63±0.090	1.28±0.098	0.35 Sunny	0.78	21.47	Bright &
May	1.48±0.246	0.98±0.163	0.50 Sunny	0.66	33.78	Bright &
June	0.96±0.123	0.62±0.062	0.34 Rainy	0.64	35.41	Cloudy &
July	0.86±0.132	0.43±0.036	0.43 Rainy	0.50	50.00	Cloudy &
August	0.69±0.062	0.22±0.017	0.47 Rainy	0.31	68.11	Cloudy &
September	0.82±0.077	0.32±0.115	0.50 Rainy	0.39	60.97	Cloudy &
October	1.12±0.087	0.55±0.205	0.57	0.49	50.89	Cloudy
November	1.18±0.155	0.46±0.159	0.72	0.38	61.01	Bright
December	1.40±0.090	0.80±0.098	0.60	0.57	42.85	Bright

Table 4. Seasonal variations in Primary Productivity (GPP,NPP) at S_1, S_2 & S_3

Season	S1	S2	S3
Winter GPP	1.50	1.72	1.36
Winter NPP	0.99	1.10	0.76
Summer GPP	1.52	1.77	1.44
Summer NPP	1.11	1.36	1.05
Rainy GPP	0.95	1.07	0.87
Rainy NPP	0.41	0.67	0.38

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

RESULTS

Primary productivity of river Mahanadi at the three study sites (S_1, Sunadei hill; S_2, Ranapur; S_3, Harirajpur) was evaluated and its seasonal variation is given in Table 4. The annual mean GPP varied from 0.69±0.062 gC/m²/day (S_3 in August) to 1.90±0.106 gC/m²/day (S_1 in April). On seasonal basis, maximum GPP was observed during summer season and minimum GPP was obtained in rainy season at all the three sites. The trend reflects a well defined seasonal pattern. The lowest GPP was noted in August in all the three study sites i.e S_1, S_2 and S_3 (0.80±0.078 gC/m²/day, 0.90±0.067 gC/m²/day and 0.69±0.062 gC/m²/day) respectively. Similarly the highest value of GPP was noted in January in all the three study sites i.e S_1, S_2 and S_3 (1.72±0.063 gC/m²/day, 1.90±0.147 gC/m²/day and 1.56±0.226 gC/m²/day) respectively. The GPP showed a continuous trend of decrease from January to September, 2012 at all the three study sites.

The annual mean NPP varied from 0.22±0.017 gC/m²/day (S_3 in August) to 1.79±0.216 gC/m²/day (S_2 in April). On seasonal basis, maximum NPP was observed during summer season and minimum NPP was obtained in rainy season at all the three sites. The trend reflects a well defined seasonal pattern. An increasing trend of NPP was recorded from January to April with a mean value of 1.50 gC/m²/day which then gradually declined. The lowest NPP was noted in August in S_1 and S_3 (0.25±0.059 gC/m²/day and 0.22±0.017 gC/m²/day) respectively. Similarly the highest value of NPP was obtained during March-April in all the three study sites i.e S_1, S_2 and S_3 (1.44±0.101 gC/m²/day, 1.79±0.216 gC/m²/day and 1.33±0.252 gC/m²/day) respectively. The NPP showed a continuous trend of decrease from July to October, 2012 at all the three study sites. The reduced production from July to October coincides with low illumination (Thomas et al., 1980). Agarwal (1980) and Thomas et al., (1980) stated that the weather conditions markedly affect productivity in aquatic ecosystem. This was also noted in present study as the highest gross and net production values were obtained on bright days.

The community respiration ranged from 0.05 gC/m²/day to 0.82 gC/m²/day. The CR value showed a definite pattern with maximum value during summer and minimum value during winter. The ratio of NPP and GPP was highest in winter and lowest in rainy season.

DISCUSSION

The ratio of NPP and GPP is important for the evaluation of the amount of gross productivity available to the first trophic level consumer (Singh and Singh, 1999). Decreased value of the ratio between NPP and GPP during the rainy season might be due to high suspended solids in the flood water restricting light penetration into the water and thereby results in less photosynthetic activities and productivity. Further the phenomenon of organic matter entering the riverine system, through surface runoff causing increased demand of oxygen for the oxidation of allochthonous organic matter cannot be ruled out. During late summer the productivity value lowers due to high water temperature, decrease in water volume and minimum phytoplankton population in the medium. The

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

minimum productivity during season may be due to dilution of nutrients, greater water depths, decrease of light penetration and lower concentration of phytoplankton in the water column.

The higher value of NPP and GPP during the summer may be due to the penetration of high light intensity which facilitate higher rate of photosynthesis and ultimately the productivity of the riverine system (Singh, 1995 and Datta et al., 1984) Community respiration is also a good indicator to assess the productivity of the water body. The community respiration values were higher during summer, may be due to increased water temperature that stimulates growth of microbial population which in turn utilize more oxygen for their metabolic activities (Sundarrary et al,. 2005). The decreased CR value during winter is linked with low water temperature and reduced light which effects the rate of photosynthetic efficiency (Ahmed et al., 2005 and Datta et al.,1984).

REFERENCES

Agarwal,S.S (1980) Proc. Symp. Boil.Trivandrum. 1 (I) : 14.

Ahmed KKV.; Ahmed SU, Halder GC, Hossain MRA, and Ahmed, T. (2005) Primary production and fish yield estimation in the Meghan River System , Bangladesh Asian Fish Sci 18 : 95 -105.

Datta NC, Mandal, N, and Bandyopadhya BK (1984) Seasonal variations of primary productivity in relation to some physicio- chemical property of a fresh water.

Mishra, SR, and Saxsena, DN (1992) The primary productivity of phytoplankton in sewage collecting Morar (Kalp) river at Jederrua Bundha, Gwalior, MP. J Inland Fish Soc India 24: 61-68.

Odum HT (1956) Primary production in flowing water.Limnol Oceanogr 1:102-117.

Saha, LC, Chowdhury, SK, and Singh NK (1985) Factor affecting phytoplankton productivity and density in river Ganges, Bhagalpur. Geobios 12:63-65.

Sahu, BK, Rao, RJ, Behera, SK, and Pandit RK (1995) Phytoplankton and primary production in the river Ganga from Rishikesh to Kanpur. J Ecobio 7: 219 -224.

Singh, AK, (1995) Phytoplankton productivity of the lentic and lotic water system of Patna (Bihar). India Neo Bot 3: 41 - 47 .

Singh, AK, Singh, DK (1999) A comparative study of the phytoplanktonic primary production of river Ganga and pond of Patna (Bihar). India J Env Biol 20: 263 – 270

Sundarrary, SK, Paanda, UC, Nayak, BB and Bhatta D (2005) Behavior and distribution pattern of nutrients in river estuarine water of Mahanadi, Odisha, India. Asian J water, Environ and Pollut 2: 77-84.

Thomas, PA; Abraham, T, and Abraham KG (1980) Observation on the Primary productivity of Sastha- mkotta lake, pp . 1-7. In : Alexender KM et al . (eds). Procsymp Environ Biol, Trivandram, India.

Yeragi, SG, and Shaikh N (2003) Studies on primary productivity of Tansa river. J Natcon 15:125-130.

ROLE OF MICROFINANCE INSTITUTIONS IN RURAL DEVELOPMENT

Banshidhar Gouda[1] and Pradeep Kuamr Acharya[2]
[1&2] Lecturer in Commerce
Nayagarh Autonomous College, Nayagarh

INTRODUCTION

The poor find it difficult to have access financial services through the formal sectors because of the cumbersome procedure of formal institutions. They do not have any collateral to secure a loan though they have small savings and they resort to the informal sector which includes the money lenders to meet their credit needs. Most of poor people are able to manage to mobilize resources to develop their enterprises and their dwellings slowly over time. Financial services could enable the poor to leverage their initiative, accelerating the process of building incomes, assets and economic security.

Grameen Bank in Bangladesh introduced the concept of microfinance and now it is a worldwide movement as it was replicated in different countries. This is the approach, which focuses on reducing poverty by providing services and other services through financial institutions that are funded by various donors and Government subsidies. To an access to institutional credit to the poor sections of the society, microfinance is one of the most sustainable and effective tools. Micro finance through self help groups has become an important instrument to meet the credit needs of the poor, especially in the rural areas. Microfinance is a finance service of small quantity provided by financial institutions to the poor. These financial services may include savings, credit, insurance, leasing, money transfer etc i.e. any type of financial service provided to customers to meet their normal financial needs unlike normal credit micro credit is limited with collateral substitute and credit plan services.

There are two major models under micro finance namely Self Help Group-Bank Linkage (SHG-BL) and Micro Finance Institutions (MFIs-SHG-BL). The SHG banking linkage programme was initiated in1992 which tried to facilitate the flow

of bank credits to SHG. In 1991-92, a pilot project for linking about 500 SHGs with banks was launched by NABARD in consultation with the RBI which advised the banks to actively participate in it. In 1994 the RBI constitute a working group of NGOs and SHGs. On the recommendation of the group, the RBI advised that the banks financing of SHGs would be reckoned as part of their lending to weaker sections and such lending should be reviewing by banks and also at the state level banker's committee level at regular intervals.

OBJECTIVES

Micro institutions are financial institution but working with social objectives. This research will discuss on different types of assessment, particulary poverty assessment that are most common and important types of research in ascertaining the social perfomance of the Mfis.

MFIs and Poverty Alleviation

Micro finance is considered to be a powerful and an effective tool for porverty alleviation. MFIs involved in micro finance generaly have mission dealing with poverty and development. The lack of access to credit for the poor is attributable to practical difficulties arising from the discrepancy between the mode of operation followed by financial institutions and the economic characteristics and financing needs of low income households. MFIs could play a significant role in facilitating inclusion, as they are uniquely positioned in reaching out to the rural poor. Many of them operate in a limited geographical area, have a greater understanding of the issues specific to the rural poor, enjoy greater acceptability amongst the rural poor and have flexibility in operations providing a level of comfort to their clients. To the extent that microfinance institutions become financially viable, self sustaining and integral to the communities in which they operate, they have the potential to attract more resources and expand services to clients. Despites the success of microfinance institutions , only about 2% of world's roughly 500 million small entrepreneurs is estimated to have access to financial services. Although there is demand for credit by poor and women at market interest rates, the volume of financial transaction of microfinance institution must reach a certain level before their financial operation becomes self sustaining.

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

Microfinance institutions are engaged in deposit taking in order to mobilize household savings, they become financial intermediaries. In view of small loan size microfinance institutions should be subjected to a minimum capital requirement which is lower than that applicable to commercial banks. Microfinance institutions could also serve as intermediaries between borrowers and the formal financial sector and on lend funds backed by a public sector guarantee. Business- like NGOs can offer commercial banks ways of funding micro entrepreneurs at low rate cost and risk. Banks make one bulk loan to NGOs and the NGOs packages it into large numbers of small loans at market rates and recover them .There are many on-going research on this line but context specific research is needed to identify the most appropriate model. With this in mind we discuss various possible alternatives of formal-informal sector linkages in India.

The term Microfinance Institution (MFI) is mostly used to refer to all types of formal and semi-formal institutions that offer microfinance services.MFI is a financial institution which can be a non-profit organization, regulated financial institution or commercial bank that provides microfinance products and services to low income clients. Initially, microfinance was mostly provided by Non Government Organizations (NGOs) and other development oriented organizations that wanted to do more than just non-formal education, technical assistance etc. In recent year years, there has been a tendency for these informal credit providers to transform into a formal and professional's microfinance institution. In our country government has established separate institutions for microfinance to be regulated by the Central Bank. Regulation means in many cases that these MFIs are now allowed to capture savings and deposits from their clients and perform other financial services. A rang of Institutions in public sector as well as private sector offers the microfinance services in India. They can be broadly categorized into two categories namely-formal institutions & informal institution. The formal category comprises of apex development financial institutions, commercial banks Regional Rural Banks and Co-operative Banks that provide microfinance services in addition to their general banking activities and are referred to as micro finance service providers. On the other hand, the informal institutions that undertake microfinance

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

services as their main activity are generally referred to as MFIs while both private and public ownership are found in the case of formal financial institutions offering micro services, the MFIs are mainly in private sector.

Profile of some large NGO-MFIs in India

There are a number of micro finance institutions in India, which play some pivotal roles to rural development in India. India's Micro Finance Sector is fragmented with more than 3000 Micro Finance Institutions (MFIs). The top 10 MFIs in India are estimated to account for almost 74% of the total loans outstanding. The brief profile and performance of top 10 MFIs in India is given as under in Table-1.

Table-1 Profile of Ten leading MFIs in India (As on Sep 30 , 2014)

Sl No	Name of MFIs	Starting Year	Head Office	Legal Status	No of Branches	Borrowers	Loan Out Stadnding (Crore)
1	SKS Micro finance Ltd (SKSMFL)	As NGO In 1998 as NBFC In 2005	Hyderabad	Pvt. Ltd Company	1,255	25,90,950	3,113
2	Spandana Sphoorty Finance Ltd. (SSFL)	1998	Hyderabad	Pvt. Ltd Company	940	16,68,807	2,220
3	Share Microfinace Limited (SML)	1989	Hyderabad	Public Ltd Company	746	1,23,556	1,569
4	Asmita Microfinance Ltd (AML)	2002	Hyderabad	Public Ltd Company	9,743	6,94,350	1,200.7
5	Shri Kshetra Dharmasthala Rural Development Project (SKDRDP)	1992	Dharmasthala (Karnataka)	Trust	122	4,06,052	2,567
6	Bharatiya Samrudhi Finance Limited (BSFL)	1997	Hyderabad	Public Limited Company	187	4,57,668	488.2
7	Bandhan Financial Services Pvt Ltd (BFSPL)	NA	Kolkata	Society	2,022	6,71,733	1,024.2
8	Cashpor Microcredit (CMC)	2002	NA	Company (Section 25)	341	3,03,935	544
9	Grama Vidiya Micro Finance Pvt Ltd (GVMFL)	1993	Tiruchirapalli (Tamil Nadu)	Pvt. Ltd Company	226	2,88,311	231.6
10	Grameen Financial Services Pvt Ltd (GFSPL)	1999	Bangalore	Pvt. Ltd Company	162	1,53,453	228.7

Many poor people do not see microfinance project as being relevant or beneficial to them. In group based lending in particular there can be an incentive for richer people in the community to exclude the very poor, especially, when group guarantee system are in place. Loan officers may have incentives to exclude the poorest if they see them as problematic to increase their workload and affect their sustainability targets.

MFIs do not seem to be an target for meeting their objectives MFIs do not need to improve their depth and breadth of outreach. High transaction costs, small volume and high cost of expanding out-reach make the MFIs unprofitable to serve the rural people When it comes to rural development with the growth of the credit infrastructure credit flow to the poor and especially to poor women remained near to the ground. India is likely to have a longer possible demand for microfinance. For this reason. It makes sense to consider the changing face of microfinance for rural development in India.

Microfinance institution extends small loan or microfinance to applicant who typically belongs to the lowest group of society. Loans are extended to borrowers to allow them to initiate a business, repair their homes and improve the general living condition of their families and the community. Microfinance is considered as a tool for socio-economic development and can be clearly differentiated from donations MFIs are charging exorbitant rates of interest, not only that MFIs charge absolute high interest but their practices like forced savings, applying a flat rate method and adding service and other charges, over and above the annual interest rate, further exacerbate the cost. This is leading to an overall high cost of borrowing for the poor, making MFIs rates look almost usurious.

MFIs are resorting to unethical ways of recovering loans. MFIs are aggressively poaching from government and banks to capture their borrowers.

SUGGESTIONS

An effective delivery system has to ensure people's participation at various stages of the formulation and implementation of the programme, transparency in the operation of the schemes and adequate monitoring.

- Involvement of experts in order to increase the efficiency and to reduce the illegal activities in MFIs.

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

- Mobile vans equipped with PC-net-connectivity may be an effective way of reaching underdeveloped/ under-banked areas.
- Rural credit bureaus may be setup at district level by lead bank offices and credit rating of all rural customers may be targeted

CONCLUSION

Microfinance through MFIs is the key mantra for a sustained and long –term economic growth in India . The same is in sharper focus today with the Government taking keen interest to ensure a comprehensive and visible uplift of rural poor through effective implementation of various schemes. Therefore, it is clear that the microfinance is most important factor to attain sustainable rural development

REFERENCES

Grameen trust (1995) Grameen dialogue No 24 Dhaka, October.

Indian Institute of Banking and Finance- Microfinance, perspectives and operations; **Kurukshetra Feb, 2009, June 2011**

Malhotra, R and Chauhan, S. D- "Banking with the poor innovations by oriental bank of commerce" Micro Finance emerging challenges, Tata McGraw Hill, New Delhi

Otero. M. and Rhyne, E (1994) The New World of Micro Finance Building Healthy financial Institutions for the poor, Kumarian Press West Harford Connection. Internet pages.

Singh, H. Ramananda and Singh, N. Dhaneswar - Microfinance An Introducing Text by Akansha Publishing House, New Delhi, 2011 edition.

Yojana Jan, 2008,

Yojana Jan, 2011

Yojana Dec, 2013

■■■

IMPACT OF PLANNED DEVELOPMENT ON THE LIFE OF THE SCHEDULED CASTES IN ODISHA- A CASE STUDY

Dr. Khali Sahoo

Former Principal, Nayagarh Autonomous College, Nayagarh

INTRODUCTION

The Scheduled castes have been considered the weakest constituent of the Indian Social structure. They have occupied the lowest rung of social ladder in Indian Society. After independence institutional safeguards for the protections and promotion of the interest of the SCs & STs were made with object of removing their socio- economic disabillties and promoting better quality of life (QOL) among them.

According to T.K. Dommen, " Free India's commitment to a socialist, secular and democratic order required the state to inspire and institutionalize change in tune with her national objectives. An important instance of this is to be found in the introduction of provisions in india's constitution and in the introduction of institutional mechanism not only to protect the interest but also to promote the welfare of the Scheduled Castes the Scheduled Tribes."

After independence, several development measures were initiated and implemented to promote the "Quality of Life" of these unprivileged sections of society. The planners of the country wished that benefits of the economic development should reach the under privileged sections of the society. With these aims of objectives all the five-year plans made separate financial allocation & formulated socio-economic programmes to immproves the lots of the SCs & STs. Insipte of planned developemnt for nearly six decades, the development effort for Scheduled Castes has so far been too small to make any visible impact on their socio- economic condition. The benefits of the developement have been appropriated by the already affluent and powerful sections of the agrarian society. The hegemony of upper caste in matters of economic and political power still continues. Most of them still suffer from poverty, social inequality and economic exploitation.

The scheduled castes and scheduled tribes still suffer from unprecedented miseries not because they do not have the motivation to develop but because the ecology and culture are yet not conducive to the removal of poverty and ignorance. Though politically enfranchised and legally privileged, yet they continue to remain under privileged in all aspects of their social existence.[2]

The scheduled castes are designated by variety of nomenclature. During ancient time they were known as "Panchamas" (fifth group). They were ranked below the four "varns" of Hindus. During the vedic period, they were known as "Chandals". In the medieval

period they were designated as "Avarnas" (exterior caste). The "Avarnas" lived out side the village. During the British period, the "Avarnas" were first designated as "depressed classes" later as "Exterior Castes" and finally as "Scheduled Castes". In 1932, the words Depressed Classes and Exterior castes were officially defined "Harijan" (Children of God) to refer to untouchable. In 1933, Mahatma Gandhi adopted it and popularized it. The term Scheduled Castes was first used by the siman commission (1928). Finally recommended by the siman commission, the term scheduled castes, appeared for the first time in the Government of India Act, 1935, as a substitute to all other words hitherto used for indentifying the 'untouchables.'

The term "Scheduled Castes" has not been defined any where in the constitution. Article 24 of the constitution, reads as follows, "scheduled castes" means such castes, races or tribes, parts or groups within such castes, races tribes as are deemed under Act 341 to scheduled castes for the purpose of the constitution of india. The President has powers to issue the list of scheduled castes order of 1950 after consultation with the Governor of any State. Not withstanding this officially approved designation of "Scheduled Castes" the term 'Harijans' has became so much popular that both the terms "Scheduled Castes" and "Harijans" are now a days as synonymous in all official and non-official records in India. Most of the Schedule Caste people are still associated with agriculture and related activities without having any control on land resource. Despite so many facilities for the developement of education among the scheduled castes, the literacy percentage among them are much below the level of the national figure.

According to kupuswamy for two reasons the Harijans were declared as 'impure castes' or 'untouchables' and were made live out side the village "Firstly they were following the lowest kind of occupations like scavenging, leather work, removal of carrion etc. and second, they persisted in eating beef which was condemned as the most heinous crime by the caste hindus.

However, even today, the scheduled castes constitute an integral part of village life. They are spread over entire nation. They continue to render some menial service to other caste people. M.N. Srivas writes, " they perform certain essential tasks in agriculture, they are often village servants, messengers and sweepers and they beat the drum at village festivals and remove the leaves on which people have dined at community dinners.

Since independence, special attention has been paid to the amelioration and uplift of SCs & STs by providing enhanced allotment of funds & evolving special development programmes in successive five year plan periods. Many constitutional safeguards have been provided and protective legistation are enacted by various states to protect the interest of SCs & STs. But the goals set forth in five year plans are yet to be fulfilled and attempts made for the transformation of the socio- economic conditions of SCs & STs have succeeded only partially. Most of them still suffer from economic deprivation, exploitation, discrimination. A rough estimate indicates that there are 3000 castes in the

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

country out of which 779 are the Scheduled Castes. Besides these. 779 castes are further divided into different Sub-Castes."

After independence, the Govt. of India has made several efforts to improve the conditions of SCs and STs. Social legislation has gained much more importance as an instrument of social change. Articles 15, 16,17 and 38 abolished untouchability and prohibited discrimination in access to shops, public restaurant, hotels, places of public entertainment, in use of wells, tanks, bathing ghats, roads and place of public resort. Article 330 and 332 makes provision reservation in parliament, State Legislators, Statutory village panchayats and many local bodies. In 1955 the parliament passed the untouchability (offence) Act. According to Article 338, a Commission for the SCs ans STs has been appointed by the Govt. of India. Besides constitutional provision, both central government as well as state governments have initiated and implemented a number of pollcies and programmes for accelerating the developement of SCs and STs But it is found that the development benefits have yet to, 'Tickle down' to the poor section of the society among the SCs & STs. Most of them continue to be below poverty line.

STATEMENT OF THE PROBLEM

Various development measures taken up by the government to improve the conditions of Scheduled Castes so far has not proved adequate and desirable. This has been evident from sixth five year plan document which states; "Although a number of constitutional directives, a number of legislative and executive measures have been taken by the central and State Governmens, the effectiveness of these measures depends on the availability of economic support. Special programmes were formulated for the socio-economic development in successive plans, but they proved inadequate.

It is found that the development process has been partial. They are subject to many form of grueson atroicities. It has failed to release the vulnerable section from poverty trap for all time to come. According to the human development report, the marginalized people are either further marginalized or they emerged as powerless victim of the provess of development. In India the condition of the marginalize people have remained very miserable even after six decades of independent. The process of globalization have further undermined their role in the development process. It is in this context that the proposed study "IMPACT OF PLANNED DEVELOPMENT ON THE LIFE OF THE SCHEDULED CASTES IN ODISHA- A CASE STUDY" is undertaken to assess the impact of development measures adopted by the Government on the life of SC people in the study area. The study would help the policy makers, planning machinery to tackle their problem in a better way. It would be also useful to that researchers in various area like sociology, Anthropology, political Science etc. & pave the way for further thinking about scheduled caste policies and programmes.

In present study an attempt is made to asses the impact of planned development on the life of the Scheduled Castes in Gania Block of Nayagarh District of Odisha.

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

OBJECTIVES OF THE STUDY

The present study aims to achieve the following objectives.

1. To study socio- economic background of the scheduled castes in study area.
2. To asses the impact of various planned development measures on the life of SCs.
3. To study various problems faced by the scheduled castes.
4. To examine the orientation & outlook in terms of changing scenario of development.
5. To draw suitable suggestions to enhance socio-economic status of the scheduled cases.

METHODOLOGY

The present study has attempted to asses the impact of planned developement on the life of the scheduled castes of Gania Block of Nayagarh District of Odisha by following methods

RESEARCH DESIGN

The justification of selection of Gania Block as study area is that the Block has the highest percentage (23.53%) of SC population in the district in comparison with other blocks. Besides, it was convenient for the researcher to collect relevant information form the district office on the problem. Gania Block is very nearer which is 40Kms away from district head quarter, where the researcher had to easily carry out his research. The researcher is also familiar with the surroundings . customs, traditions and language of the block which would help the researcher to establish rapport with respondents in the process of collection of data.

The researcher has taken schedule caste population for the purpose of the study because SC people are considered the weakest constituent of Indian social structure. They are socially Isolated, economically exploited and educationally backwards. Govt. has implemented various development measures to bring out the socio- economic transformation of this weaker section of population.

UNIVERSE OF THE STUDY

Gania Block of Nayagarh District is selected for our study. The Block at present has 8 (eight) Grampanchayats. The total population of the block is 34,650 out of which 8152 are schedule castes and 3917 are scheduled tribes. The SC & ST population constitues 23.53% and 11.3% respectively of the total population of the block. The total number of SC house hold is 1630 which constitutes the universe of the present study.

SAMPLING

The Scheduled castes living in the Blocks are Hadi, Pana, Dama, Dhoba, Keuta Mochi, Kandara, Bauri and Ghantara. They are scallered in the area permanently. In the present study, proportionate stratified random sampling method was used. It was decided to select around 20% of the respondent from each category of SCs as units for the sample.

Accordingly, the researcher selected 236 Sc house holds for study. The respondents were identified from differen socio-economi back grounds. In each famfly, the head of the housed-hold (may be male or female) was identified as the respondent. following table shows the size of the samples.

Table-1 Size and Distribution of Respondent

Sl. No.	Name of G.P.	Actual number of SC House holds	Number of house holds selected
1.	Gania	120	24
2.	Karadapada	182	36
3.	Belapada	340	68
4.	Rasanga	208	42
5.	Kishoreprasad	262	52
6.	Adakata	84	17
7.	Chhamundia	320	64
8.	Badasilinga	114	23
	Total	1630	326

Table shows the population and number of SC House holds. The size of the sample is 326 respondents who reside in SC house holds. They are scattered in 8 Gram panchayats.

RESEARCH TOOLS

Depth intervies, participant observation and interview schedule constitute the principal toopls of the present study. Intensive interview was conducted with the help of interview schedule. Most of the questions were structured. The Data were collected from sample families through interview schedule as the most of the respondents were illiterate.

COLLECTION OF DATA

The data were collected from both primary and secondary sources. Primary data were collected from 326 Sampled familes through interview schedule. Interview was conducted at the place convenient to the respondents. Generally, morning time was selected for conducting interview as the respondents were in their house-holds & were free from busy life. The respondents were interviewed in odia. The data was collected by the researcher him self. The secondary data were collected from Block Office, District panchayat office, District Statistical Office, Tribal and Harijan, Research- Cum- Training Institute, Bhubaneswar, Odisha.

SUMMARY AND CONCLUSION

The summary and conclusion of the present study is presented & discussed below. The scheduled caste population of the Block is 8152 which constitute 23.53 percentage

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

of the total population of the block. About sixty percent of the respondents were illiterate. Illiteracy rate was very much high among pana, Kandara & Hadi Castes. About fifty percent of the respondents were engaged in caste occupation and only 5.5% of the respondent were engaged in caste free occupation like trade & business; 86.8% of the respondents belonged to below poverty line. The percentage of respondents below poverty line (BPL) was higher among Hadi, Pana, Dama, Kandara, Bauri castes.

The dwelling status of the respondents was not satisfactory. 76.1% of the respondents were living in kutcha house.

Majority of the respondents were not aware of the development measures meant for them. Even they do not know that seats are reserved for them in Govt. services, Gram Panchayats, Panchayat Samiti, Legislative Assembly & Parliament. Due to non-availability of work in locality, large number of people are migrating of out side the state to work and they are not getting proper wages in return of their work. It was found that only 35.6% of the respondents were getting work under NREGA. One third percentage of respondents got the financial assistance to undertake income generating scheme.

Provision for housing the scheduled castes presents a dismal picture. Only 20.2% of the respondents were provided land under the provision of land to landless. Only 37.4% of the respondents possessed landed property. 24.5% of the respondents did not have homestead land & they had constructed house under government land. Only 12.3% of respondents were provided financial assistance to construct house under IAY.

Health services were very poor in Block. Sanitation and electricity facilities were not found to be satisfactory. Almost all the sampled houses were not using pucca latrine. Though safe drinking water facility is available to almost all the villagers through wells, tube-wells in summer season, people generally depend on 'Chuas', Ponds etc. None of the respondents have adopted the family welfare programme due to reasons of social customs and physical health. Most of the people depend on village quack for treatment of diseases. 18.4% of the respondents also depend on 'Gunia' (witch doctor) for treatment. Most of the common medicines are not available in PHC/ Hospitals and the people have to purchase it from private medical store. People are not satisfied with the service rendered by doctors & medical facilities proveded by hospital. An overwhelming majority of the respondents informed that they were discriminated in the matter of medical facilities on the ground of their low socio- economic status.

As regards to educational achievement, it was found that 58.9% of the respondents were illiterate. The rate of illiteracy was found to be higher among pana, Doma, Bauri, Kandara & Hadi Castes. 35.6% of the respondents were not sending their children to School. 30.1% drop-out case were found among the sample house- hold in last 2 years. Poverty was found to be the main reason of drop-out followed by other reason like family circumstances, Lack of interest and ill- health etc. Education programme of the government

to provide free and compulsory education to the children and to increase the rate of literacy has not made any visible impact on schedule caste people. About one third percentage of respondents viewed that Sarva Sikshaya Abhijan was not successful at all.

The orientation and outlook of the respondents are changing but slowly Majority of the respondents recognized the importance of education, media T.V. participation, modern health care, role of Gram Panchayat & equality of sex and freedom of women. Equal emphasis on women education was recognized by 67.5% of the respondent and 25.3% supported the participation of women and 50% supported the freedom of women in taking their our decision in politics, Idea of equality of sex was accepted by 66.9%. Majority of the respondents felt that there was change in the life-style of the rural people through development programme. With increase education and closer contact with high castes the mode of living of SCs has changed as they imitate the style of living of upper caste people. They also felt that excessive consumption of liquor was injurious to health. They recognised role of Gram Panchayat in developement activities of villager, Only 14.7% respondents favoured inter-caste marriage. However, about two third percentage of the respondents realised that these was a visible change of attitude & behaviour of high caste people towards them.

Education is the key to social mobility and an important factor for self- reliante. It was found that only 6.1% of respondents from Dhoba and Keota Caste had gone from above marticulation and about 60 percent of respondents are illiterate. Poverty, lack of interest, absence of teachers, non- availability of basic amenities in the schools are some of the important reasons of low progress in education . Various facilities like dress, study marerials, stipend, mid-day meals provided by govt. failed to attract the SC children to school. Large number drop-out cases were found in the study area.

Health, hygience and sanitation are major indicators of development Malnutrition leads to cause endemic and epidemic infections. Large number of endemic disease like malaria, diarrhoea, dysentery and brain fever are prevalent in study area. During summer season, the Scheduled castes are faced to use unsafe drinking water which leads to different diseases.

Provision to construct house for scheduled castes under JAY in the block is far from satisfaction . Most of the families are living unhygienic mub & Katcha houses.

Many of the villages area of the blocks are connected by kutcha roads. There are some village which are not connected by any type road. So there is lack of proper transporation and communication facilities in block.

As regards to the economic aspect of the problem, it was found that occuptional mobility was quite negligible. Job reservation did not seem to have helped the scheduled castes in our sample. Only 5.5% of respondents from Dhoba and Keota castes were engaged in caste free occuption like trade, business & commerce.

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

To day, problems of the scheduled castes are receiving serious attention of the Govt & some effors are taken to improve the quality of life of these vulnerable section of society. Therefore, there is urgent need to improve the administrative machinery. Proper supervision and evaluation of the various developmental programme is very essential.

The role of voluntary organisations is very important in the social upliftment to the downtrodden in rural areas. They can motivate the poor people towards proper child care, health, sanitation and functional literacy etc.

On the basis of finding and critical examination of ground realities of the block, the following suggestion may be undertaken in improving the socio-economic condition of the scheduled castes.

1. So irrigation facilities should be given top priotity. Step should be taken to provide irrigation facilities the the area through canals from River Mahanadi. Irrigation facilities can also be created through constructing minor irrigation project (MIP) Water Harvesting Structure (WHS), open wells, dug wells, which can contribute to increase in agricultural production. The farmers should be supplied with chemical fertilizer, improved & high yielding seeds and they should be taught about modern teachniques of cultivation.

2. The health centres in Adkata and Chhamundia should be well equipped with adequate number of doctors , nurses and midwives. It will be better if a medicine mobile van with a team of medical officers and adequate medicine should visit study area in every week.

3. Among the scheduled castes in Block, Keota constitutes the largest group. Most of the families of this case depend on fishing as river Mahanadi is flowing through this block. They should be given proper financial assistance to develop their business.

4. A small group of people belonging to Ghantara Caste are engaged in their traditional occupation. They make different idols in bell metal which are sold inside & outside of districts. This section of people should be given financial assistance to continue their profession. Cottage industries based on availability of local products should be encouraged.

5. Transport and communication facilities of the area are very poor. Most of the villages are having Kutcha road and few forest roads for which it is very difficult for the people to move from one place to other in rainy season. In the absence of proper communication, movements of agricultural products are affected. So steps should be taken to convert the kutcha roads to pucca roads. There is need to construct all weather roads to the villages situated in remote area.

6. The employment opportunities may be promoted through out the year through forest based small and cottage industries. Local people should be involved in major civil works like river valley projects, road construction, plantation and other public works.

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

7. Literacy level among the SC people is very low. Improvement of literacy among the scheduled castes depend on their access to primary education. Poverty, lack of motivation, ill health etc. were found to be the reasons of drop-out cases. Anganwadi Centres provide primary education and nutrition care to the children. Therefore, it is necessary to open Anganwadi Centres in those villages which have no such facilities. The quality of mid-day meal should be improved.

8. Voluntary organisation has a special role to make people conscious about the benefit of small size family and to reduce fertility rate through family welfare measures.

9. Minimum and equal wage for men and women must be ensured with the help of Gram Panchayat.

10. The Gram Panchayat should ensure that the contractors and businessmen do not exploit the innocent & poor. Co-operative Societies should be strengthened to eliminate the role of money lenders.

11. People living in remote area lack sufficient information and knowledge about various programmes. Mass Media communication has a important role to play in creating awareness and consiousness among the people.

12. It was observed that scheduled caste people in the study were not getting essential commodities under BPL scheme, regularly. So the concerned authorities should see the proper distribution of essential commodities regulary among the SC people.

13. Block authority should see that SC people should get job under NREGA so that migration of SC people to outside of the state for work can be checked.

14. Nationalised Banks and other financial organisation should adopt some what liberal attitude to sanction loan assistance for income generating scheme for economic self-reliance of the scheduled castes.

15. Develpment of small and village industries are indispensable to improve the condition of the poor and weaker section. Artisan families should be adequately assisted and arrangement may be made for smooth marketing of their product.

Among the many nation - building activities of the Government of India, the upliftment of the backward communities is of paramount importance. These communities are socially, economically and politically depressed. Both at Central & State Government level various welfare measures have been adopted in successive five years plans to fulfill the desired goal. Different development programmes has been implemanted in Block from time to time to raise the socio-economic condition of the SC people. But no significatn change seems to have taken place in their life-style. Lack of proper co-ordination among different component of planning, poor implementation of the programme, lack of participation of people due to ignorance & illiteracy etc. have made these programme ineffective. Therefore, the rural political elites, the administrators and people should involve in the process of rural development and try to alleviate the rural poor, particularly, SCs & STs from the conditions miserly, ignorance, hunger and exploitation.

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

REFERENCES

Atle, I.D. (1992) Rural Employment of Scheduled Castes, Deep and Deep Publication, F. 159 Rajouri Garden, New Delhi.

Bhowmick, K.L. (1993) Development of Scheduled Communities, Inter-India Publication, D-17, Raj- Garden, New Delhi.

District at a glance (2006) Directorate of Economics and Statistics, Odisha Bhubaneswar Odisha.

Govt. of Odisha (2001) District Statistical Hand Directorate of Economics and statistics, Odisha, Bhubaneswar Book, Nayagarh 2001.

Govt. of Odisha, Statistical Directorate of Economics and Statistics, Odisha, Bhubaneswar, Abstract of Odisha .

Govt. of Odisha (2005) Statistical Directorate of Economics and Statistics, Odisha, Bhubaneswar, Outline of Odisha.

Jacob Aikara (1980) Scheduled Castes and Higher Education, Dastana Ramachandra & Co, 46, Raviar Peth, Poona-2.

Jha Makhan (1987) Scheduled Castes To-day, M.D. publications Pvt. Ltd. New Delhi.

Krishnaiah   Chetty V.B. (1974) Scheduled Castes and Development Programmes in India, Vohra publishers and Distributions, Allahabad.

Kupuswamy, B. (1993) Social change in India, Konark publishers Pvt. Ltd Main Vikas Marg, New Delhi.

Oommen, T.K. (1984) Social Transformation in Rural India, Mobilisation and State Intervenation Vikas Publishing House. Pvt. Ltd. New Delhi.

Parvathamma, C. (1984) Scheduled Castes and Scheduled Tribes. A Socio-Economic Survey, Ashish Publishing House, Punjabi Bag New Delhi,

Rao, Hemalata and M. Devendra Babu (1994) Scheduled Castes and Tribes, Ashish Publishing House New Delhi.

Sahoo, Khali (2005) Rural Developement; Scheduled Caste and Scheduled Tribes, Classical publishing Company, New Delhi.

Singh Hoshiar & Mallik A.S. (2001) Socio- Economic Development of Scheduled Castes in India, Aalekh

Sing R.P. (1987) Sociology of Rural Development in India, Discovery Publishing House, New Delhi.

Sixth five year Plan (1980-85) Govt of India, Planning Commission, New Delhi, 1980.

Tara Datta (2001) Tribal Development in India (Odisha), Gian Publishing House, New Delhi,

■■■

A STUDY ON THE ROLE OF DECISION MAKING EDUCATION IN SOLVING THE ADOLESCENT PROBLEMS

Dr. Binita Mohanty
lecturer in Education
Kamala Nehru Women's College, Bhubaneswar

ABSTRACT

Adolescent is the most crucial and important phase of human life. This is a period of stress and strain. It is the period of transition from childhood to adulthood. The period of adolescent is characterized by an upsurge of changes like Physical, intellectual, emotional, social and behavioural conditions. Crime, smoking, drugs and alcoholic addiction, reckless driving, wilderness, defying attitude and infection by many other sexually transmitted diseases like HIV are the major problems facing by the adolescents today. Changing unhealthy behaviours during adolescence would have a broad impact on society. This study is an empowering approach in helping the young people to take proper decisions in every walk of life i.e. choices of life style, choice of profession, sexual relationship, etc .to overcome the problematic adolescent period.

INTRODUCTION

Adolescence is the period of transition from childhood to adulthood which constitute the most important influential period of life and tends the child to attain the manship or womanship from the childhood stage. It is the period of rapid revolutionary changes in the individual's psychological, physical, physiological, mental, oral, spiritual, sexual and social conditions. It is generally thought to begin with the onset of puberty. It is termed as period of learning, development of new dimensions and also period of anxiety and complexity, Etymologically the term adolescence comes from the Latin word: "Adolescence" which means to grow to maturity. It emerges from the later childhood stage and merges in the adulthood during which the child develops into a mature man or woman. Stanley Hall describes the period of adolescence as "a period of great stress and strain, storm and strive". So, some people regarded adolescence as a sort of second birth.

CHARACTERISTICS OF ADOLESCENCE

According to Medinnus and Johansen "Adolescence begins with signs of sexual maturity which occurs in both physical and social development and ends when the individuals uses assumed adult roles and is accepted in most ways as an adult by his reference group".

On the basis of definitions given by many psychologists following characteristics of adolescence can be considered.

1. There are psychological changes with boys and girls in this period especially with regard to sex.
2. During the adolescence anger is a common factor which grows out of a feeling of inadequacy.
3. Moral and spiritual development also occurs in this period.
4. The feeling of taking a strong decision in any matter develops during this period.
5. The symptoms of great emotional tensions like rebelliousness, defiances, nonconformity destructiveness and truancy develop during this period.
6. They feel more conscious about their personality and become more energetic, enthusiastic, adoptable and understanding to the situation.
7. In this period there occur remarkable changes in needs.
8. Curiosity develops about things around him and about his bodily changes including development of secondary sexual charecteristics.
9. The adolescence develop the conflicts of value, shyness and aggressiveness.

Actually adolescence is a process rather than a period , a process of achieving the attitudes and beliefs. The adolescent period consists of three phases as follows.

Pre- adolescence phase(Age 9-13)

During this phase adolescent experience a rapid social development. An increase in their own sexual development gathers momentum. They strive to move with peers.

Mid-adolescence (age 14-15)

This phase of adolescence is the most recognized phase for the development of physical, emotional and intellectual capacities. The secondary sexual characteristics continues to develop.

Late – adolescence phase (Age 16-19)

It is the period of independence and decision making. At this stage they like to live independently and take their own decision.

DEMOGRAPHIC PROFILE

- Every hour of everyday, two American young people contacted with HIV, 96 become pregnant and nearly 350 more contacted with a sexually transmitted diseases. (U.S. Public Health Service 2001).
- Although national overall rates of teenage pregnancy have declined, nearly 1 million teenagers become pregnant every year (AGI, 1999)
- One-quarter of all new HIV infections in the United States are estimated to occur in young people under the age of 21(Advocates for youth 1998). 64 percent of adolescents(age 13 to 19) reported with HIV are females and 84 percent are ethnic minority youths (CDC, 2000)

DECISION MAKING

Decision Making can be defined as the ability of a person to be able to decide what he/she wants in life. This will enables the individual to gather information about issues and decide for him/her self what is right for him/her as he/she will be able to evaluate the future consequences of his/her own action. This skill helps one to make decision after examining the choices which are consistent with one's values and goals.

Decision theorists define decision making as the process of making choices among competing course of action. (Raiff, 1968: von Winterfeldt and Edwards 1986).

According to the most general normative model, a person facing a decision should

a) List relevant action alternatives
b) Identify possible consequences of those actions.
c) Assess the probability of each consequence of occurring.
d) Establish the relative importance (value or utility) of each consequence. And
e) Integrate those values and probability to identify the most attractive course of action.

A decision making process is effective to the extent that it produces desired outcomes. That is usually determined easily after the fact that the decisions are

logically sound to the extent that the decision maker's choices are consistent to both their values and with the information available to them at the time of decision

HOW TO TEACH DECISION-MAKING SKILLS TO ADOLESCENTS

Adolescents learns to make good decisions when they understand which ones get them more of what they want and which ones result in more of what they don't want.

What adolescents want and don't want.

Adolescents Wants

1. More Fun.
2. More independence
3. More time with friends.
4. More control over their daily lives.
5. More time with mobile and electronic gadgets.

Adolescents don't want

1. Arguments with parents.
2. Conflict with peers
3. Social drama.
4. Loss of privileges
5. Adults telling them what to do.

Decision making in the context of sex and adolescence education

Adolescence signifies the onset of physical/sexual maturation and reproductive capacity. Young people have a need and a right to know about their bodies and to be educated and informed about their sexual health, yet they face many social, political and community barrier to receiving and gaining access to the right information. Sex is often a challenging and difficult issue for both youths and adults to discuss. The consequences of not talking about sex however, can be sever.

Adolescent's decision making skill can be developed only through the following ways.

- Explaining how the adolescent brain works.
- Asking question
- Offering support
- Praising a good decision.
- Recognizing mature thinking
- Empathizing with a tough situation they had to deal with.
- Providing "snapshot" information about how parents think and feel.

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

UNDERSTANDING THE INFLUENCES IN SEXUAL DECISION-MAKING.

Making good decisions and responsible choices about sexual activity during the teenage years can have immediate lasting implications for overall health out comes. How teenagers make decisions about relationship, abstaining or participating in sex and protecting themselves and others from sexually transmitted diseases and pregnancy is influenced by numerous factors. Parents, peers , the media, access to education and services and a host of other factors influence decisions and subsequent health outcomes. Understanding the context of decision making and social influences provide significant insight for effective health interventions. It gives instructive guides for social workers, individuals work with youths and families as well as programmatic and policy implications. Young people, sexually active or not are influenced by a range of individual and social factor.

THE ROLE OF PARENTS

The role of parents in the lives and decisions - Making processes of youth s is often underestimated. Although the transition to greater independence is the hallmark of this developmental phase, parents clearly have a role and can exert significant influence in the choices of young people to make about sex.

- Teenagers are most likely to seek sexual information from their friends (61 %), although they are least likely to seek information from their parents (32%), A significant number of teenagers (43%) express a strong desire to have more information on how to talk their parents about sex and sexual relationships (Kaiser Family Foundation, 2000a).

- Nearly 80% of teenagers indicate that what their parents have told them and what their parents might think to influence their decision about sex and relationship (Kaiser Family Foundtation, 2000b)

- The more that teenagers are satisfied with the mother –child relationship, the less likely they are to be sexually experienced (Advocates for youth, 1997) conversely , poor communication with parents , about sex and safe sex practices ,and parental substances abuse are also linked with risky sexual behaviours (Fraser, 1997).

- Poor parent-child relationships are associated with depression in adolescents.

- For young women, estrangement at home often leads them to seek and establish intimate relationships outside the family, seeking the warmth and support they lack at home. Also, girls experiencing sexual abuse in the family are linked to increased risk of teenage pregnancy (U.S. Public Health Service, 2001).

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

THE ROLE OF PEERS

The peer group is an important factor in adolescent development and has same bearing on teenager's decision about sex.

- Adolescents (Age 13-18) report that they are most likely to get information about sexual health issues from their peers (Kaiser Family Foundation 2000a)
- Pressure to engage in sex increases during middle adolescence (Fraser, 1997). Peer group attitude about sex influence the attitudes and behaviours of teenagers.

Youth who resist engaging in sexual activity tend to have friends who are abstinent as well. They also tend to have strong personal beliefs in abstinence and the perception of negative parental reactions. Youths who are sexually active tend to believe that most of their friends are sexually active as well, that rewards outweigh the costs of sexual involvement, that sex overall is rewarding and that it is all right for unmarried adolescent over the age of16 to engage in intercourse (Advocates for youth 1997).

THE ROLE OF THE MEDIA

- The images that pervade the media (television, music, videos the internet and the like) are increasingly more explicit in sexual context.
- More than half(56%) of all television shows contain sexual content. Just 9% include any mention of the possible risks of sexual activity or any reference to contraceptive and protective or safer sex (Kaiser Family Foundation, 1999).
- Among young people of 10 to 17 years of age who regularly use the internet, ¼th had been exposed to unwanted pornography and 1/5th had been exposed to unwanted sexual solicitations or approaches. (U.S. Public Health Service 2001).
- Although media images of sex and sexuality may be socially defined as negative influence on teenage sexual decision-Making, there is considerable potential for the use of media in conveying messages about responsible sexual behavior. For example more than ½ of high school boys and girls indicate learning about birth control and pregnancy prevention from television (U.S. Public Health Service, 2001).

ROLE, FUNCTION AND RESPONSIBILITY OF TEACHERS

Educational institutions continue to have greater influence on the young mind than parents and religion. The main components of educational system are the teachers, the students and the curriculum. The most crucial of these is the teacher.

- Young people need skill and competency to deal with increasing demands and stress they experience in their day to day live.
- Adolescent needs Psycho-Social competency and ability to develop healthy life style and responsible behavior.
- There are many misconceptions regarding sex and sexuality among people which need to be rooted out.

EFFECTIVE TEACHING METHODOLOGY FOR IMPARTING DECISION MAKING EDUCATION.

1) Role Play-Triple disassociation.
2) Group Discussion.
3) Debate
4) Case study
5) Quiz contest

CONCLUSION

The teacher, parents and others who deals with the adolescents should be very sensitive, empathetic and compassionate as the mind of the adolescent are in a developing stage. They should understand that their mental development changes properly and very carefully. Hence, the adolescents should be handled with much care.

REFERENCES

Advocates for Youth (1997) Fact-sheet on adolescent sexual behaviour-II Socio-psychological factor

Advocates for youth (1998) Fact sheet on sensitive, empathy, and compassion conclusive.

Hurlock, E.B. (1994) Developmental Psychology; a life span approach,

IGNOU (2007) Adolescence and Family Education (BESE-066, BLOCK-1), New Delhi.

NACO (2005) Life Skills, Modules, Adolescence Education Programme, New Delhi.

WHO (1997) Coming to age from facts to action for adolescence sexual and reproductive health, Geneva.

■■■

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

PROTECTION OF ANIMALS IN THE ATHARVAVEDA

Dr. Manasi Sahoo

Lecturer in Sanskrit, N. P. M. Mahavidyalaya, Nayagarh

INTRODUCTION

Veda means knowledge. Veda is an eternal source of knowledge from which various rivers of knowledge appear and has flown in so many streams that not only flooded India but the whole world. Veda is such an auspicious literature, which is neither written by man nor by god but the ancient *rishis* have got it by their meditative skill. Vedic scholars thought that the highest truth is enlightened to the best persons who are pure in heart. The *rishis* are not the writers or creators of *Vedamantras*, they are the seers. They had seen the *mantras* by their inner eyes. Their souls were inspired by god and can hear the eternal words of truth. About the vastness of Veda Dr. Kireet Joshi said that, "Even the religious tradition that has taken inspiration from the Veda has been able to declare that beyond any creed or dogma, beyond rituals or ceremonies or prescribed acts, there is available to humanity a living knowledge that can be acquired and possessed through experiences and realisations which, in turn, can further be transcended and integrated by larger experiences and realisations"[1]. In the present situation of ecological imbalance on this earth, it is necessary to find solution by the help of Vedic literature. The present paper is a modest attempt for the protection of animals, who play an important role for the protection of environment.

IMPORTANCE OF ATHARVAVEDA (AV)

Among the four Vedas *Av* is important one due to its usefulness in all ages. The Vedas i.e. *Rigveda, Yajurveda and Samaveda* generally provide the non-worldly results "*alaukika-phala*", while *Av* deals mostly with the worldly results "*laukika-phala*". It prescribes remedies for all types of evils of human life in the shape of medicines and prayers. *Av* means the knowledge of Atharvans, the sages who were the earliest teachers of *Brahma-vidya*. This is believed that there are twenty Atharvan seers, so *Av* contains twenty books or *manòdòalas*. Here *rishi* Atharvan tries his best to bestow a prosperous life to mankind. It has variety of contents of socio-political and psycho-biological significance. In the modern age also it is an open field for new researches and fresh accumulation of knowledge. The *rishis* are not only the seers of *mantras* but are the scientists and intellectuals who were well known of the smaller and smallest factors of the whole cosmos.

FORESTS: THE ABODE OF ANIMALS

Forests are the abode of wild animals, where they can live happily and freely with plenty of food. These are the source of wood, gum, resin, fiber, honey, lac, oil, pulp, medicine, etc. Ecologically the forest is very important as it helps in balancing oxygen and carbon dioxide level in the atmosphere. It provides protection to wild life, increases the water holding capacity of soil, maintains the soil fertility and regulates earth's temperature.

For the protection of animals protection of forests is very necessary. In this connection we may look into our Vedic culture, where forests have been worshipped as goddesses. *Aranyani-sukta* of *Rigveda* stresses on the need of protection of forests. The *rishi* invokes forest as mother-

Anjanagandhimsurabhimvahvannamakrushivalam,
Prahammrugan#ammarataramaran#yanimasamsisham.[2]

"We have praised the forest queen, sweet-scented, full of fruits and vegetables. She is the mother wild animals". Here the term *akrushivalam*signifies that cultivation was not permitted in the forests. From *Av* we learn that the cutting and uprooting of green trees shorten the life span and bring calamities in life. Killing animals and violence in the forest is prohibited in a *mantra*[3] saying that- 'Forest supplies protection to animals. Everybody can live freely and happily in the forests eating delicious fruits".

IMPORTANCE OF ANIMALS

In India there are about 76,000 species of animals, which is about 82% of thespecies of the world. Each and every animal plays an important role in maintaining ecological balance on earth. Loss of any species threatens the survival of some other species including man. Again each and every animal has the right to continue his life on earth apart from his usefulness to mankind. Animals occupy a very important position in Vedic life and economy. The Vedic thought is - the entire world is an extended family and man is only a member of it, though is the most capable and virtuous of all. Again the seniors in the family are seniors because they contribute to the improvement of juniors and children and share their happiness with all other members. Moreover it is the responsibility of man to afford protection to all animals.

PROTECTION OF ANIMALS IN VEDIC PERIOD

Vedic people are very careful for the protection of animals. Today existence of wild animals is threatened by man's unprecedented intervention with nature. Therefore a number of species have been extremely reduced, some species are

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

already on the verge of extinction and some have already perished. It has a bad impact on the ecosystem. Therefore preservation of wildlife is mostly needed.

Protection of wildlife means preservation of nature's living resources, because now the concept of wildlife management is intertwined with the concept of management of natural ecosystem. In this connection we may look into our Vedic literature, what they say for the conservation and the protection of wildlife. In Vedic period people knew that all the particles of nature i.e. herbs, plants, trees, forests, sun, moon, air, cloud, firmaments, stars, mountains, oceans, rivers, ponds, and all the creatures of land, water and sky are meritorious for the survival of mankind. Hence they express their obligation to nature worshipping them or showing them respect. Different types of animals e.g. deer, tiger, cow, horse, bull, goat, vulture, even scorpion like insects etc. are narrated in different hymns. In some *mantras* the universe is compared to a cow. Different forces of nature are described as its different limbs e.g. its horns are like *Prajapati*, broad head Agni, upper lip as heaven and lower lip as earth etc.

Veda classifies animals into two categories i.e. *gramya* and *aranya*. The village animals were protected and preserved with care. The forest animals were also accepted as *hitah.*

Ye tearanyah# pasavomruga vane hitah#,
Sinha vyaghrah# purushadascharanti .[4]

"All the wild animals like deer, tigers and man eating lions roaming in the forest are benefactors. O motherland! Keep the violent wild animals, at a distance from us". Here the *rishi*Atharvan informs to stay in a distance from violent wild animals. He wants that, these animals should not harm anybody because all of them should live happily. Each and every animal has the same right to live and grow on this earth.

In different *mantras*[5] prayer is offered for the protection of all the biped and quadruped animals. They were very careful for the protection of animal resource.

Sharma yachhatvoshadhin# sahadevirarundhatee,
Karat payasvantamgos#thamayakshmanutapurushan .[6]

"Let *Arundhati* make the cows rich in milk. May she make free the cows and men from all diseases".Animals like cow, horse etc. were accepted as the best wealth by Vedic man as they brought good fortune to him. *Rishi* Meghatithi announces the animals like cows, horse etc. as seven costly treasures- "O Agni and Vishnu! It is your fame that you both accept the offered ghee oblation and donate the seven animal-treasures to the *yajamana*"[7]. Not only the human beings but also the ferocious animals like tigers, lions, scorpions, wolves, jackals, serpents,

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

etc. are also the children of the same mother earth. So killing of wild animals was permitted only in self-defense. It gives us the knowledge that the Vedic people were fully aware about the importance of wildlife. Again Av prescribes some medicines which are created from animals. The horn of dark dear possesses the medicinal properties to cure different diseases[8]. The horn and skin of deer can remove deadly diseases like leprosy tuberculosis etc. The forest animals, sylvan creatures, small and big birds like swan, eagle etc. all these creatures should be protected and should be preserved from extinction[9].

CONCLUSION

After Veda, *Vedanta* has also propagated that, everything around us is the outcome of the one and the same Supreme Soul. There is no difference between man and any other creature. The message of *Atharvaveda* is "Live and let live". Not only the human beings but also the fierce animals like tiger, lion, serpent etc. and mild animals like deer, rabbit, etc. all are the children of the same mother earth. All the species should be supplied protection and it is the duty of man to protect them. Each and every species has to be protected for its own sake, so that the equilibrium of the environment will be maintained.

Sam samsravantupasavah# samasva samupurushah ,

Sam dhanyasyaya sphatih# samsravyen#ahavisha juhomi[10] .

REFERENCES

1. *Vedic Tradition and Modern Crisis*, Dr. Kireet Joshi, *Vedic Tradition and Contemporary Crisis*, Eastern Book Linkers, Delhi, p. 1-2
2. *Rigveda, X.146.6*
3. *Rigveda, X.146.5*
4. *Av, XII.1.49*
5. *Av, VI.107.1-4*
6. *Av, VI.59.2*
7. *Av, VII.29.1*
8. *Av, III.7.1*
9. *Av, XI.2.24*
10. *Av, II.26.3*
11. *Atharvaveda*, Srirama Sharma Acharya, SamskrutiSamsthan, Barely, 2006
12. *Rigveda*, MaharshiDayanandaSarasvati, D. P. B. Publications, Delhi, 2009

∎∎∎

ANTIMICROBIAL PROPERTIES OF AGRATUM AGAINST BACTERIA

Suchismita Parida[1] and Dr. Rajkishore Maharana[2]

[1]Lecturer in Botany, [2]Reader in Botany

Nayagarh Autonomous College, Nayagarh

ABSTRACT

The pathogenic microbes directly or indirectly cause various diseases in living organisms which reduce the life span. The wide use of different plants directly or indirectly helps the living organisms for curing of various diseases. In order to overcome this problem an attempt has been made to find out antimicrobial properties of plants like Ageratum conyzoides against bacteria S. aureus, S epidermidis & S. saprophyticus . The finding of present investigation may help directly or indirectly to work in the future to cure various diseases and also it may help pharmacists to develop different drugs and medicines from these plants to recover from the diseases caused by these bacteria. This is the alternative approach to us of plant extracts to cure infections. Leaf of A. conyzoides has an inhibitory effect on the growth of bacteria.

INTRODUCTION

Microbes are too small to be seen but they are present everywhere in the environment including humans, animals, plants and other living creatures. On earth their numbers together for exceeds all other living cells.

Most Microbe interactin is complex. Influence of microbes in human, plant and in the life of other living creatures sometimes beneficial and at times detrimental. Over the millennia microbes had have harmed human being. and disrupted the culture and civilization of many societies. One third population that is 25 Million people of Europe were killed within four years due to the effect of plague in the year -1347 By 1431, Black Death or plague struck again and again in Europe and wiped out 75 % of the European Population. It was believed that this dreaded microbial disease had changed European culture and opened the way for renaissance.

A lot of work has been done on antimicrobial Properties of various medicinal plants. In the present work an attempt has been made to investigate the antimicrobial properties of Ageratum conyzoides , because these plants are easily available in India. The aim of Present investigation is to find on alternative to allopathic medicines because plant derived drugs may have lower adverse effects.

MATERIAL AND METHOD

The plant material used for investigation is –Ageratum conyzoides , that is the most common medicinal plant found in India.

Botanical name – Ageratum conyzoides

English Name – goat weed

Odia Name   - Pokasungha

Mostly healthy and disease free leaves of Ageratum were collected and adhere soil particles were warned gently. then it was dried and sterilized leaf powder was prepared by grinding and homogenized with distilled water. after centrifugation the extract was stored in a refrigerator. then sterile whatmann No.1 paper disc of leaf extract were prepared & placed on agar plate against antibiotic (penicillin).

CONFIRMATORY TESTS FOR DIFFERENT MICROBES

(A) Pathogenecity :-

(i) Staphylococcus aureus

It is an important pyogenic organism and lesion caused by the organism is characteristically localized. Infection caused like cutaneous deep infections, sepsis of wounds and burns, tonsillitis, pneumonia, food poisoning due to staphylocal interotoxin.

(ii)   Staphylococcus epidermidis.

They are universal skin commensal occasionally acts as opportunistic pathogens causing minor infections. They are coagulase negative and fermet sugars by producing acid and gas .

(iii)   Staphylococcus saprophyticus

They are coagula a negative and ferment sugars. They causes acute urinary tract –infection in women .

METHODS USED

To show the effect of leaf extract of Ageratum on resident bacteria of human skin several experiments have been done. Out of these several Experiment one is given below. i.e

PREPARATION OF LEAF EXTRACT

Methods of Samuel (2006) and Venkate Raman (2001) were adopted for the leaf extract preparation 20 gms of shade, dried, powdered , leaves were soaked separately in 100 ml. distilled H_2O and 100 ml Methanol for 72 hrs. At the end of 72 hrs, each extract was filtered through Whatmann's filter paper. Filtered extract

were evaporated in a rotary evaporator and the dried leave extract was dissolved in the same corresponding solvent to get a fixed conc. of 2 mg/ ml

RESULTS

Table-1 Growth of Staphylococcus in different formulation and dilutions (mg/ml) of Ageratum leaf extract (turbidity measurement)

Sl. NO.	FORMULATION	DILUTION mg/ml	O.D at 620nm		
			S.aureus	S. epidermidis	S. saprophyticus
1	Water	1.5	0.55	0.88	0.54
		2.5	0.42	0.59	0.50
		3.5	0.38	0.54	0.48
		4.5	0.22	0.50	0.32
2	Methanol	1.5	1.0	0.78	0.55
		2.5	0.73	0.56	0.48
		3.5	0.66	0.48	0.45
		4.5	0.22	0.22	0.35

From this it is proved that the aqueous extract of Ageratum has higher antimicrobial activity than methanolic extract of Ageratum.

EXPERIMENTAL RESULTS

Then the methanolic extract of Ageratum conyzoides is demonstrated to show antimicrobial activity against the bacterial strains S. aurus , S. epidermidis and S. saprophyticus and the measurement is done with the help of a centimeter scale and while the diameter is measured in mm.

Table-2 Measuring zone of inhibition of methanolic extract and distilled water of plant Aeratum against penicillin (10 mg / disc)

Sl. No.	Formulation	Zone of Inhibition		
		S. aureus	S. epidemidis	S. saprophyticus
1	Water	9	8	8.5
2	Methanol	7	6.5	6
3	Penicillin	10	9	9.5

From this table it is seen that the inhibition zone ranged from 7 mm to 10 mm and it can be inferred that all the three species are more sensitive to aqueous than the methanolic effect of Ageratum conyzoides.

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

DISCUSSION

The experimental plant material i.e. Ageratum conyzoides which is used for collection of aqueous leachate and bioassay study is tested for bacterial effect against S. aureus , S. epidermidis and S. saprophyticus. The samples are collected from the natural ecosystem during the month of December when plants reach their late flowering and fruiting stage.

TABLE-3 DATA ON DISEASES CAUSED BY TEST BACTERIA AND MEDICINES USED.

ORGANISM	DISEASE (AUSEI)	MEDICINES USED
S. aureus	Tonsillitis	Benzylpencillin Cloxacillin
S. epidemidis	Pneumonia Infection	Gentamycin Ampocillin cephalosporin
S. saprophyticus	Urinary tract infection in women	Norfloxalin cephalosporin Gentamycin

TABLE-4 DATA ON ADVERSE EFFECTS OF SOME ANTIBLOTICS

ANTIBIOTICS	ADVERSE EFFECTS
1- Penicillin	Anaphylaxis
2- Gentamycin	Nephratoxicity
3- cephalosporin	Skin- rash
	kidney –damage
	Ecosinophillia
4-Norflxalin	Nervousness
	Cartilage –damage
	Skin- rash

CONCLUSION

Form this experiment it is concluded that the aqueous extract of Ageratum conyzoides has more antimicrobial activity than methanolic- extract. All the three bacteria are more sensitive to aqueous extract than methanolic extract of Ageratum. Both aqueous and methanolic extracts are more effective against S aureus.

SUMMARY

The effect of secondary metabolites collected as leachate of Ageratum conyzoides is studied on pathogenic bacteria like S. aureus, S. epidemidis and S. saprophyticus to determine the extent of antimicrobial activities that can be used as possible herbal medicines. Currently herbal antimicrobial therapy represents the sole approach for the eradication of infections caused by bacteria

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

REFERENCES

Acamovic, T.; Stewart, C. S. and Pennycott, T. W. (2014) Poisonous plants and related toxins , Science.

Ahmad, I.; Aqil, F. and Owais M.(2006) Modern Phytomedicine: Turning Medical Plants into Drugs.- Medical.

Dubey, R.C. and Maheswari, D.K. – Practical Microbiology S. chand publication.

Medical and health information directory, (1998) A guide to organizations bridget Travers Medical care.

Pearce, L. M. and Staff, T.G. (1995) Plants With Antimicrobial Properties, CABI, DJ Cousins, CAB International.

Raman, B.V.; Rao, D.N. and Radhakrishnan, T.M. (2007) Screening of medicinal plants for proteinaceous antibacterial compounds PP=69.73.

Samuel L.A. (2006) Screening, Isolation and characterization of antibacterial compounds fromlore medicinal plants M-SC Dissertatin submitted to Andhara University = PP =9-11

Srivastav, G. and Bhora, A .(2005) Antibacterial activity of extract of leaves of some free plants against salmonella typhil. A study in vivo. Ad. Plants. Sc. 18 (11) 601-603

■■■

NAVAKALEBARA: THE EVE OF DIVINE EMBODIMENT

Raghunath Das

Guest faculty, Dept. of Sociology, Nayagarh Autonomous College, Nayagarh

"Nilachala Nivasaya Nityaya Paramatmane

Balabhadra Subhadrabhyam Jagannathaya Te Namah"

INTRODUCTION

Navakalebara is the unique festival of ShreeJagannath temple . Navakalebara is the function of New-Embodiment of deities.It is a ceremony in which Lord Jagannath Shree Balabhadra and Devi Subhadra and Sudarshan cast off their old ghat(body/image) and enter into new ones. Navakalebara has been seen as one of the sacred and religious festival .The Navakalebara ceremony takes place in eight ,eleven ,twelve and nineteen years intervals in the leap month of Asadha(may-june).

The land of hope,glory and differentiate culture India always looks very colorful with it's peoples dress,idea,language,religion and festivals.India is conspicuous to the eyes of the people of outsiders and countrysiders for its unique identity of 'Unity in Divesity'.Inhabitants of India have many culture, religion,languages,races and regions.Countrysiders made India as a holistic land of cultures and religions as well as mixed tune of multi-languages and the 'cycle of sadness and happiness' carries the mixture of new feelings.People should so responsive to remove the monotony of dry life.The unseen spirituality mades India as best one's.Spirituality one of the result of religious sacredness and cultural practice of ideas.No doubt religion and culture composites the human mind as celebrative as well as festivity.Most of occasions are observed by Indians are more religious in by its nature.Hindu religious scriptures expositions and literatue remarks that thare are more than thirty-three crore God and Goddesses.The Hindu patriarchal nature confines Godes are more prestigious and honourable rather than Goddesses.The mythical and Puranic evidence says that Lord Jagannath one of the encarnation of God Bishnu. He is among from three supreme god called as "Tri-deva"[The top three rank gods are Brahma(The God of Creation),Bishnu(The God of Presevation)and Shiva(The God of Destruction)].His temple [Shreemandir]is famous in world wide for Rathyatra[Car Festival]and Navakalebara[Ghat Paribatran].Both are observed in the month of Asadha.But occasionally Navakalebara is celibrates in specially reference to the gap of intervals for Mala-asadha[leap month of asadha].

HISTORY OF THE FUNCTION OF NEW-EMBODIMENT(NAVAKALEBARA)

Navakalebara regarded as one of the unique as well as special occasion in Shreemandir. Shreemandir is made by on the direction of King Chodagang Dev in his ruling time.Later here the God's image was placed byKing Indradumna .The literary meaning of "Navakalebara" in Sanskrit denotes "Nava Chasou Kalebaram cheti" or "the new body/bulk of anything/anybody".

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

The recorded diary of Shreemandir which is known as the Madala Panji[the Chronicle of the Shreejagannath temple] reads deities images were invaded by Raktabahu and for 146 years images lay buried underground.King Yajati brought back the images of deities and Navakalebar thereafter organized time to time.

The King Ramachandra Deva of Bhoi Dinasty was also made the transmutation of Brahma[the soul of deity].Because of invasion of images by Kalapahada in that time(Bhoi Dinasty).In 1575 (A.D.)deities takes their new bodies which are made from Daru (Neem tree).

In Úrîmad Bhâgavatam changes of ghats(body)of deities guided as such lines-

úailî dâru-mayî lauhî
lepyâ lekhyâ ca saikatî
mano-mayî manòi-mayî
pratimâsòtòa-vidhâ smròtâ [Cant-11.Chapter27/12.]

It defines that worshiped forms of deities in wooden images ,metal statue and stone idols are respectively for twelve,thousand and ten thousand years can be determined for the success of worshiping. Aforesaid events and literature has the greater circumstances for the wooden body of the deities needs to be changed or purposes to be change. In the years of 1863, 1893, 1912, 1931, 1950, 1969,1977and 1996 have Navakalebara done successfully.It is another ritual of partial Navakalebara found in Shreemandir which one called as 'Sriangaphita'.In the year1893,Sriangaphita was observed a new type of Navakalebara where the body of deities existed for next Navakalebara , only the upper portion is innovated by art.

CONSIDERATIONS FOR NAVAKALEBARA

Navakalebara is nearly in June12 of 2015 is fixed by astrologers to held. Navakalebar is fixed by astrologers in accordance to the Hindu Lunar Calendar .In generally Asadha is one of the month from that calendar while Mala Asadha[one leap month of Lunar Calendar] is found particularly after interval of some years after.Mala Asadha also known as all over India by 'Purusottam Masa'.Somewhere it is known as 'Adi Masa' or 'Mala Masa'orJoda Asadha(two months of Asadha) .The basic reason for the fall of the leap month is that a Lunar month(1month=29.5days) is shorter than Solar month(1month=30.44days). Generally astronomical consideration must be takes an attention due to Navakalebara as one of cultural and religious celebration in Shreemandir,Puri.

DIVISION OF LABOUR IN NAVAKALEBARA

Navakalebara of ShreeJagannath may need support of administration of Sreemandir and astronomical consideration of astrologers as essentially. Whereas the collaboration of the Government of Odisha and Government of India and Civil Societies with Sreemandir Prasasan(administration of Sreemandir)is made effective Navakalebara successfully. The forest,home,culture& finance and other departments of Government and Priests,Daita,PatiMahapatra Sevak, Viswakarma, Lenka Kahalia, Deula Karana , Tadhau Karana and other functionaries of temple are positively involved in Navakalebara Ceremony .The labour is divided among the temple priests and Sreemandir administrative

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

functionaries and consequently each function is interrelated with other. Navakalebara is accessed by each interrelated and interconnected units of division of labour in the following ways of service.

Table.1 Division of Labour in Navakalebara follows several ways and phases as depicted below.

Division of Labour in Navakalebara	Name of the Phase of Work/Function	Particular jobs in generally	Participation of Functionaries
1.	Navakalebar Meet	Tithi Darya(Date fixing for celebration by Astrologer) & GuaTeka	Astrologers and Administators
2.	Banajaga Yatra & Determination of Daru	Journey to Deuli Matha , Puja at Kakatpur Mangala and Search for Daru & Determination of Daru by Banajagi Dal	Banajagi Dal(Special parties from Shreemandir)-Daita,Pati Mahapatra Sevak &others
3.	Transportation of Daru	Jag,Jajgya & Transportation of Daru with Procession	Priests ,Banajagi Dal ,Police,Forest Authorities & also peoples from different villages
4.	Carving of Images of Deities	Carving of wooden Daru & colouring with different art of the Image/body Neem Daru	Viswakarma and others artisans
5.	Deba Snana Purnima	Ceremonial Bath of Deities	Daita and others
6.	Yajna ,Consecration /Nyasakaran of image/body	Declaring sacred withVedic & religious chanting	Priests and partial hand in Dutta Mahapatra and all other bodies of Sreemandir
7.	Brahma transplantation/Ghat Parivartan	Transplantation of Brahma Padartha from old to new body at mid-night	Only by Suprime Priest
8.	Infuse of life to images/Jibana Dana	Infuse of life to images with religious chanting and vedic karma	Suprime Priest(Bada Panda) &other junior priests of temple
9.	Burial of Old Images	Firing the old images of deities at divine moratorium Koili Baikuntha in vedic norms	Daita, Pati, Mahapatra Sevak , Biswabasu ,Viswakarma and others
10.	Nava Jouban Darshan & Samikshya	Establishing new deities on their own seats/Ratnasimhasan and evaluation	Priests of the temple & all other Shreemandir admistration functionaries,members and representatives of government

PLAN FOR ACTION [RELIGIOUS PROCEDURES]

The action plan for Nabakalebara starts 2 months before the Devsnana Purnima. On the 10th day of bright fortnight in the month of Chaitra (ChaitrasuklaDashami), After Madhyannha-Dhoop, after offering due prayers to Chaturdhamurti and obtaining the.

Agnyamala (heartfully permission) PatiMahapatra, Deula Karan, Tadau Karan, BeheraKhuntia, BiswakarmaalongwithBadagrahiDaitas and others, Complete their Saribandha (tying of blessed saries on the heads of the participants) ceremony within the Jagamohan and Natamandir.

Then the sacred procession starts from the Srimandir towards the Srinahar of Gajapati Maharaja through SataPahach, Ananda Bazar, 22 steps, Singhadwara and Badadanda. BadagrahiDaitas carry the agnyamala and lenka moves with the Sudarshan Chakra in front of the procession. Gajapati,(King of Gadajat kingdom of Puri), adapts the Nabakalebara procedure by touching the tandul and the coconuts etc. and on behalf of the Gajapati, Rajaguru hands-over such items to Biswabasu with the request to initiate the process of Nabakalebara.

PROCEDURES FOR COLLECTION OF 'DARUS'

From the very begining , Gajapati does Barana of Shrotriya Brahmin Acharyas in similar process. In co-local language such action is termed as GuaTeka. After GuaTeka the sevayats not connected with the Banajagjatra, Taluch, Pradhani, BeheraKhuntia, Ghantua, Chatara, Kahalia, Banantarietc, who proceed from Srimandir to Srinahar in the initial procession come back to Srimandir.

The Banajagi Dal (Daru Searching team) – PatiMohapatra, Biswabasu, Dalapati, BadagrahiDaitapatis, Brahman Acharyas, BadagrahiBiswakarmaMaharana, Tadaukarana and Deulakaranaetc, proceed to JagannathBallav Matha on Badadanda (greater road of Odisha at nearby Puri) accompanied with the music of conches, trumpets, drums and gongs etc, with religious procession. After Banajagi Dal remain there for one and half-a-day for their initial preparation. All types of preparation and accommodation i.e Prasad-sevan is made by Matha . Thereafter two days,,they are reached in temple of Mangala(another goddess of Devi Cult)at Kakatpur by passing Baliguali, Ramchandi, and Konark. In the early morning of next day, Daru searching team (Banajagi Dal) started it's work with special Majana (Ceremonial bath of Deities in Hindu religion) for her, dress and decorate Her with the new Sarees and beautiful flowers provided by Shreemandir Prashasan .Goddess Mangala is the supreme authority to find out the location of Daru in the time of Nabakalebara Ceremony . After Majana and just before to going bed PatiMohapatra and Biswabasu chanted the mantra of swapna-manabak for 108 times daily to seeing goddess Mangala and proper identification of Daru.

SPECIAL SIGNS AND SYMBOLS IN DARU/NEEMWOOD

The prescribed criteria for selection of a daru has ten signs are mentioned in webpage of past Navakalebara:

1. A Barun bush in the neighbourhood. The notion that there must be also a Sahara bush may not be correct.
2. The tree must stand near a river/ pond/ water bodies.
3. There must be an Ashram (hermitage) near the tree.
4. There must be a cremation ground near it.

5. There must be the four sacred signs of Chakra (wheel), Sankha (conch-shell) Gada (mace), and Padma (lotus).

6. The tree should have no branches up to a certain height (probably 12') from the ground and all the branches must be in trees.

7. There must be a termite hill at the foot of the tree.

8. There should be no bird's nest on it.

9. There should be a cobra living at the foot of the tree.

10. There should be no creeper or parasite on the tree.

DIVINE DEITIES AND HER/HIS DARUS

Traditionally,the Hindu religious symbol – (Aum) is combined with five special character (A), (U), (ma) and the dot[Vindu(.)] and sound (nada).In such way , – (Aum) is the unique symbol of Lord,Balabhadra, Sri Jagannath ,Subhadra and Sudarshan and Madhav.Another evidence also related to it is that, (Aum) is the alternative forms of Tri-Dev.The function of new-embodiment of deities carries the change of body /idol of Lord Jagannath,Balabhadra,Subhadra, Sudarshan and Madhav.

The Daru of Sri Jagannath,Balabhadra,Subhadra and Sudarshan carries certain sacred marks in the tree. The Daru of Lord Jagannath having four straight clear branches. There should have the divine marks of Lord Vishnu like Sankha(Conch), Chakra(Wheel/Disc), Gada(Mace) and Padma (Lotus) in the Daru of Sri Jagannath. It should look dark or dark-red in colour. The Daru of Sri Balavadra carries the marks of plough, pestle and other weapons of His.Another special sign carries The Daru of Sri Balavadra is that, the tree needs to have seven branches looking like the form of a canopy and the hood of a cobra.It should look light brown in colour. The Daru of Devi Subhadra carries five clear branches and bear the mark of a lotus flower with five petals. The tree should look yellow in colour which meant for Devi Subhadra. The Daru of Chakraraj Sudarsan should have three branches.. There should be a mark of Chakra on any portion of the tree. The tree should also have a depression in the middle. It should be reddish in colour which one meant for Sri Sudarsan.In case of Sri Madhav partial changes has been seen.

TRANSPORTATION OF DARUS

A newly made wooden cart[Shagadi] should be employed for the transportation of Daru.The carrier of Cart was made in Tentuli wood,while it's axile in Kendu tree and wheels ware in Banyan(Bara) tree.The entire portion of daru is covered with red cloth and sandal,flowers and other ceremonial things are put on it with a Special Puja[religious ceremony].People of some villages are helped to passing the cart with prossesion.There should be anather provision to informing Gajapati Maharaja while cart is crossing at Atharanala(one place of Puri).By order Daru is carried with special care .Respectively first the Daru of Sudarshan,then the Daru of Devi Subhadra, the Daru of Sri Balabhadra and at the last Daru of lord Jagannath from the north gateway of Shreemandir.Darus of Deities are puts in carving room which are situated nearby the Daru Mandap(another religious place inside Sreemandir).Thenafter,Biswakarma and other artists are employed

to carving the Darus of Deities.It was done before Devsnan Purnima according to SreemandirNiti.

SPECIAL CEREMONY IN THE DAY OF NAVAKALEBAR

On the day 'Snana Purnima', the old statues of deities are received the ceremonial bath on "Snana Mandap". The 'Darus' also similarly receive the ceremonial bath like the old statues on the same Snana Purnima day. One day after Snana Purnima,the 'Darus' are taken to Carving place(Nirman Mandap). The 'Anabasara'(suffering days for gods due to heavy bath) period of the Nabakalebar year actually extends over a period of one month and fifteen days. The temple remains closed to the public during the time of Anabasara of deities.

EVENTS OF GHATPARIVARTAN

The events of Ghatparivartan(transfermission of soul) is held in a closed and locked room known as KoiliBaikuntha.The four Supreme Daita (each one from respective Bada/ side of Deities) blind folded and hands ware covered in cloth so that they could neither seen nor feel what they ware transferring. The 'Brahmapadarthas' are transferred from the old statues to the new statues by them at mid-night of the day Navakalebara. Before transfer of the 'Brahmapadarthas', a special Bhog is offered to the old deities known as 'Sarbanga Panti Bhog'.

BRAHMAPADARTHA : THE MYSTERY OF MATERIALISTIC CURIOSITY AND SPIRITUAL EMOTIONS

It is seen among some religious personnel Brahmapadartha is nothing but people are saying in such manner i.e 'Soul is immortal not to shown anybody /anything by any means or idea' , worthwhile materialistic view on Spirit is looks into an object as similar things. Such views are compared with other matter ,object and things may be a solidized or liquidized or gaseous or lightened.This group viewed Brahmapadartha as an object of one varieties among 'Salagrams'. Some are believed that there is one mixture of varieties of flower and other rare finding things.In generally what is Brahmapadartha is hidden from the eyes and mind of the people.That is so secret and sacred.It was purely unknown for others. This is the subject that is religiously prohibited to common.

BURIAL OF OLD IDOLS AT KOILIBAIKUNTHA

After transformation of 'Brahmapadartha'from each idol, the same idol is considered as dead. Idols are loaded in their respective cart in which the corresponding new image had been brought in and the same is immediately carried toKailibaikuntha which is considered the graveyard of the old deities. "There also a pit (9 Hastas deep and6 Hastas in diameter) is kept ready in the midstof a beautiful garden to receive the old wooden idols. The pit is spread out with red velvet andthe old images are buried there." Thereafter , "giving the final touch to the eyes of the deities, the Brahmin servitors bath them (their reflections in the bronze mirrors) with 'Panchamrita". Panchamrita is made with special mixture of five indigenious elements like Ghee,Honey(Mahu),Milk,Curd(Dahi:another

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

product of milk)and Guda(Local sweet is made from sugarcane juice). Panchamrita is very sacred in nature which purifying all things.

Navakalebara is one of the traditional customs in modern times. It is an expensive affair but still it is continued. The religious minds of people and servitors and the coopearative hands of governments and various organisations made it very easier and accessible to handle. The Nabakalebara function is socio-religious,socio-cultural and spiritual ground to observe. .It was guided by own it's oneness norms and rules.Jagannath Cult and Philosophy has own its separate identity. There is no space for inequality and discrimination at all.Simply,He is the "God of Common People".

<div align="center">

Jagannath Swami

Nayana Patha Gami

Bhabatu Me

</div>

REFERENCES

Mishra, K.C.Cult of Jagannath

Mohanty, Surendra Lord Jagannth

Mansingh, M.Saga of the Land Jagannath

Eschmann, A. Kulke, H.& Tripathy, G.C. The Cult of Jagannath and Regional Tradition

Rathasharma, S.N., Shanka Panchakam,Odisha Review,January2014,Vol-LXX NO.6

Mishra, Dr.B. Navakalebara Ceremony of Lord Shri Jagannath, Odisha Review,January2014,Vol-LXX NO.6

Dash, D. Nabakalebara, Odisha Review ,July 2013,

Bhaktivedanta VedaBase Srimad Bhagbatam XI.27/12

Parida, C.R. Odisha At a Glance,Kitab Mahal,2011

Website References:

www.google.co.in

www.wikipedia.org

http://nabakalebara.nic.in

www.jagannath.nic.in

www.odishadiary.com

■■■

RATING OF SME: A STEPPING STONE
TOWARDS THE PREPAREDNESS FOR ECONOMIC UP-TREND

Dr Laxmidhar Sahoo

Lecturer in Commerce, Nayagarh Autonomous College, Nayagarh

INTRODUCTION

Since independence the Government of India has nurtured small industries sector with special care with the aims to develop this sector as a major source of employment, to encourage decentralized industrial expansion, to ensure equitable distribution of income and to mobilize capital investment and entrepreneurship skills. Small and medium sized enterprises are expected to play a major role in creating jobs and contribute to the economic development of the country. In transition economies, such as India, SMEs are faced with a host of obstacles in their business activities and prime amongst them is access to finance from formal sources. In India, MSMEs contribute approximately 50% of the country's industrial output, yet only 13% of the registered MSMEs have access to finance from formal sources.[8] Prevailing Information asymmetry within the SME sector impedes supply of adequate quantum of finance. The Banking and financial service institutions are un able to take decisions due to lack of structured and analyzed information on the SMEs. In such a scenario, credit rating for the MSMEs is proving to be beneficial in building confidence of the formal channels of lending on the SMEs.

SMEs in India are mostly in the un-organised sector and are the source of livelihood for millions of people. The social contribution made by SMEs is even more significant than its economic contribution. Within the SME sector, the small sector serves as a seed-bed for nurturing entrepreneurial talent and originating units to grow eventually to medium and large enterprises. The promotion of SMEs, therefore, becomes a major area for policy focus. Regeneration of SMEs must receive public support particularly for the village, cottage and micro level enterprises. Despite their economic significance, SMEs face a number of bottlenecks that prevent them from achieving their full potential. Major obstacles for business development for SMEs relate to a wide range of issues like financing, infrastructure, marketing, tax & regulations, technology etc. Lack of access to finance and timely credit as well as escalating cost are cited as primary reasons for under-utilisation of the manufacturing capabilities of SMEs.[7]

LITERATURE REVIEW

With the rapid development of SMEs and common financing difficulty faced by MSMEs, research on MSMEs financing and credit rating method has drawn a lot of attention of both academy and industry all over the world. Several attempts have been made to have a standard rating for MSMEs in different corners of the globe.

In a detailed discussion paper of the "Models Task Force" of the Basle Committee, an empirical analysis and classification of internal rating models of banks was performed (Basle Committee (2000a) and 2000b)). The analysis concludes there is no common standard for design and application of internal rating models yet. However, there are several common factors to be seen, among which are the choice of the risk indicators, the prioritization of counterparty rating before transaction rating and specific aspects of structures of rating processes.

Krahnen/Weber (2001) developed thirteen principles, which can be understood as quality standards for the development of internal rating models in banks. Among these, there are general requirements like adequate comprehensiveness, completeness as well as adequate complexity. Like wise other requirements are model-specific e.g. detailed specification of credit events, monotonicity in the relation between ratings and probabilities of defaults and the necessity of adequate granularity of the rating classes to avoid adverse selection. Similar arguments can be found in the consultative paper of the Basle Committee, which defines requirements for a rating model to be certified by the national supervisory committees (Basle Committee (2006).

An empirical study by Brunner/Krahnen/Weber (2000) deals with bank internal ratings in Germany. It focuses on the question of whether banks can use the information advantage obtained by the rating process in competitive lending markets. To do so, the impact of non-public information (qualitative factors) on the overall rating result was analyzed. The paper concludes that qualitative information tends to improve companies' overall corporate rating.

OBJECTIVES OF THE STUDY

The rating model's design is determined by the underlying rating philosophy. The rating philosophy itself is again determined by the purpose of the rating, the rating object and time dimensions. In the context of SME loans, the purpose of the rating for the individual loan exposure is usually the determination of probabilities of default (PD). PDs can be used as a tool to control the risk exposure in a SME portfolio and as a basis for economic applications such as pricing and economic capital attribution.

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

METHODOLOGY

The methodology adopted for this study is the literature review. A research literature review, as a process, is a systematic, explicit, and reproducible method for identifying, evaluating and synthesising the existing body of completed and recorded work produced by researchers, scholars and practitioners. Literature review is an organised critical account of information that has been published on a specific topic, (for example, SME access to credit) and provides an organised synthesis of the information, ideas and knowledge.

ANALYSIS

Innovation – the development of new products and services, and of new methods and processes – is widely seen as the driving force of economic growth and prosperity. SMEs are responsible for much of the innovation in the economy, even if larger firms are ultimately responsible for exploiting this innovation, and are consequently the focus of government policy. Following the definition in the Basle paper, a rating system covers all methods, processes, controls, data and IT systems that are necessary to calibrate rating models and derive PD estimates (Basle Committee (2006). In this article, a rating model is used to perform risk classifications in terms of ratings. The architecture of a rating model describes the elements of the model and their relationships with each other. Typically, a PD is attributed to a specific rating class. Therefore, a rating describes the ex-ante quantification of the risk, that the rating object does not perform with regard to predefined credit events, typically paying back the liabilities within a certain time frame. In practice, the attributed PDs are often used as a basis for loan decisions and the application of risk premiums and credit limits.

Notwithstanding the increase in credit outstanding to the sector, access to adequate and timely credit at a reasonable cost is a critical problem faced by this sector. The statistics compiled in the Fourth Census of MSME sector September 2009, revealed that only 5.18% of the units (both registered and unregistered) had availed of finance through institutional sources, 2.05% had finance from non-institutional sources; the majority of units i.e. 92.77% had no finance or depended on self-finance. Thus, the extent of financial exclusion in the sector is very high. But, this is not entirely unexpected because if one looks at the financial exclusion in our country in general, then MSMEs cannot remain unaffected by it.[3] In developing economies, more than 90% of all firms outside the agricultural sector are MSMEs, generating a significant portion of GDP. In the Indian context, as per data released by the Ministry of MSME, there are about 26.1mn enterprises in this sector. The sector accounts for 45% of manufactured output and 8% of the GDP. MSMEs contributed close to 40% of all exports from the country and employed nearly 59.7mn people, which is next only to the agricultural sector. The performance of MSMEs

In India, though impressive, comes next to China where this sector provides around 75% of the total employment, accounts for around 99% of total enterprises and contributes around 60% to GDP. In the case of Japan, there are 4.69mn MSMEs, constituting 99.7% of all enterprises, accounting for 70% of all employment. The MSMEs share in Japan's GDP is estimated at 56.8%. In Korea, MSMEs account for around 79% of employment and 46% of GDP.[6]

CONCLUSION

The benefits of rating to lenders would provide an objective, independent and reliable opinion on credit quality, serve as an additional input in the credit decision making process, Assist in risk pricing and capital allocation, facilitate portfolio management and monitoring. The rating would also help to improve the comfort level with prospective/existing lenders, negotiate better terms on the basis of the credit quality reflected by the rating, reduce the time involved in obtaining loan approvals, project a better image to prospective/existing trade partners, carry out self-evaluation and take timely and corrective measures for improvement.

Importance of this sector is better understood. No dis-agreement is there that finance is a great obstacle among others for its development. Mezzanine financing is the financing style of providing additional funds in case the business is growing. To have finance there is the need of rating. On the ground of rating it is said that lower rating is better than no rating.

REFERENCES

Angeles: Sage Publications.

Board of Governors of the Federal Reserve System, Washington, DC 20551 U.S.A.

Chakrabarty, K. C. (2012) Keynote Speech, Conference on Empowering SMEs for Inclusive Growth- Strategies & Initiatives, P-4

Fink, A. (2010). Conducting research literature reviews. From the Internet to paper. 3rd Edition. Los

Gurav Vijay, ET Bureau Aug 8, 2012, BSE SME Exchange to lure companies with direct listing option

Sharma, S P. (2012) PHD Chamber Bulletin

Seshasayee. R (2006) Financing SMEs – An Industry Perspective, CAB CALLING (July-Sept,2006) P.24

Source: provisional (2010) Trends and Progress, RBI

■■■

ମାନସ ମନ୍ଥନରେ ନାଟକ : 'ମନୁମନ୍ଥନ'

ଡକ୍ଟର ବିଜୟ କୁମାର ଚୌଧୁରୀ

ଅବସରପ୍ରାପ୍ତ ପ୍ରାଧ୍ୟାପକ (ଓଡ଼ିଆ), ନୟାଗଡ଼ ସ୍ୱୟଂଶାସିତ ମହାବିଦ୍ୟାଳୟ, ନୟାଗଡ଼

ଓଡ଼ିଆ ନାଟ୍ୟଧାରାରେ ଦୁଇଜଣ ପ୍ରଥିତଯଶା ରାମଚନ୍ଦ୍ର ମିଶ୍ର, ଯେ ଯାହା ସମୟରେ ଯଥେଷ୍ଟ ସୁନାମର ଅଧିକାରୀ । ସଂଯୋଗକ୍ରମେ ଉଭୟଙ୍କ ଜନ୍ମ ଦଶପଲ୍ଲା ଗଡ଼ରେ । କିନ୍ତୁ ବୃତ୍ତିରେ ଜଣେ ଆଇନ୍‌ଜୀବୀ ଓ ଅନ୍ୟ ଜଣେ ଅଧ୍ୟାପକ । ତେବେ ଦୁହିଁଙ୍କ ସ୍ୱତନ୍ତ୍ର ସେମାନଙ୍କ ସୃଷ୍ଟିରୁ ବାରିହୋଇପଡ଼େ । ସ୍ୱାଧୀନତା ପୂର୍ବ ଏବଂ ପରବର୍ତ୍ତୀ କାଳରେ ବିଶିଷ୍ଟ ଆଇନ୍‌ଜୀବୀ ସ୍ୱର୍ଗୀୟ ରାମଚନ୍ଦ୍ର ମିଶ୍ର ପ୍ରଥାସିଦ୍ଧ, ପରମ୍ପରା ପ୍ରସୂତ, ବାସ୍ତବଧର୍ମୀ ପାରିବାରିକ ନାଟକ ରଚନାକରି ଓଡ଼ିଆ ନାଟକ କ୍ଷେତ୍ରରେ ନିଜର ପରିଚୟ ସୃଷ୍ଟି କରିଥିବାବେଲେ, ଅଧ୍ୟାପକ ରାମଚନ୍ଦ୍ର ମିଶ୍ର ପରବର୍ତ୍ତୀ ପାଢ଼ିର ନାଟ୍ୟକାର ଭାବରେ ପରୀକ୍ଷା ଓ ପ୍ରୟୋଗ ସ୍ରୋତରେ ନିଜକୁ ଭସାଇଦେଇ ନବନାଟକ ଧାରାରେ ଆପଣାକୁ ସାମିଲ କରିନେଇଛନ୍ତି । ପ୍ରସ୍ତୁତ ଆଲୋଚନାଟି ଅଧ୍ୟାପକ ରାମଚନ୍ଦ୍ର ମିଶ୍ରଙ୍କ ନାଟକକୁ ନେଇ ଗଠିତ ।

ଅଧ୍ୟାପକ ରାମଚନ୍ଦ୍ର ମିଶ୍ର, ଜଣେ ଉତ୍ସର୍ଗୀକୃତ ସ୍ରଷ୍ଟା ତଥା ଏକାଡେମୀ ପୁରସ୍କାରପ୍ରାପ୍ତ (ଏକାନ୍ତ ନିଜସ୍ୱ- ୨୦୧୧) ନାଟକକାର ହୋଇଥିଲେ ହେଁ ସାହିତ୍ୟର ଇତିହାସ ଅଥବା ଆଲୋଚନା କ୍ଷେତ୍ରରେ ଅଦ୍ୟାବଧି ଅନାଲୋଚିତ । ବୃତ୍ତିରେ ଅଧ୍ୟାପକ, କିନ୍ତୁ ପ୍ରବୃତ୍ତିରେ ନାଟ୍ୟକାର । ଗଣିତରୁ ନାଟକ, ବିଚିତ୍ର ସମୀକରଣ । ଜୀବନର ଛିନ୍ଧପୃଷ୍ଠକୁ ତନ୍ନତନ୍ନ କରି ବିଶ୍ଳେଷଣ କରିଛନ୍ତି ସେ । ତେଣୁ ତାଙ୍କର ନାଟକମାନେ ଅଙ୍କକଷା ଜୀବନର ପରୀକ୍ଷାଗାରରେ ବାରମ୍ବାର ପରୀକ୍ଷିତ ହୋଇଛନ୍ତି । ସମାଜ ଓ ଜୀବନର ବ୍ୟବଚ୍ଛେଦ କଲାବେଲେ ନାଟ୍ୟକାର ଶ୍ରୀ ମିଶ୍ର କେତେବେଲେ ଜୀବନ ସହିତ ଜୀବନକୁ ଆଉକେତେବେଲେ ସମାଜ ସହିତ ଜୀବନକୁ ମିଶାଇ, ଫେଡ଼ି, ଗୁଣି, ହରି ଫଳ ନିର୍ଦ୍ଧାରଣ କରିଛନ୍ତି । "ହର ଗୁଣ୍ଡ ଫେଡ଼େ ମିଶା, ଆଉ ସବୁ ପାଠ ଫସରଫସା" କହିବା ଭିତରେ ଜୀବନର ଦାର୍ଶନିକ ସତ୍ୟଟି ହେଉଛି; ଗଣିତ ଜୀବନଠାରୁ ଅଥବା ଜୀବନ ଗଣିତଠାରୁ ଭିନ୍ନ ନୁହଁନ୍ତି । ସ୍ରଷ୍ଟା ସମାଜକୁ ଦେଖିଛନ୍ତି, ଜୀବନକୁ ପଢ଼ିଛନ୍ତି ତା' ପରେ ଯାଇ ନାଟକ ମଧ୍ୟରେ ତା'ର ଲ:ସା:ଗୁ:, ଗ:ସା:ଗୁ: ନିର୍ଣ୍ଣୟ କରିଛନ୍ତି । ଜୀବିକା ମଧ୍ୟରୁ ଜୀବନକୁ ଅନ୍ୱେଷଣ କରିଥିବା ସ୍ରଷ୍ଟା ରାମଚନ୍ଦ୍ର ନିଜ ପୂର୍ବସୂରୀ ବରିଷ୍ଠ ଆଇନ୍‌ଜୀବୀ ସମଧର୍ମୀ ସ୍ୱର୍ଗତ ରାମଚନ୍ଦ୍ର ମିଶ୍ରଙ୍କୁ ନିଜର ଆଦର୍ଶ ଭାବେ ଗ୍ରହଣକରି ନାଟକ ସୃଷ୍ଟିରେ ତାଙ୍କ ଦ୍ୱାରା ଅନୁପ୍ରାଣିତ ହୋଇଥିଲେ ମଧ୍ୟ ନୂତନ କିଛି ସୃଷ୍ଟି କରିବାର ମାନସିକତା ନେଇ ସେ ନାଟ୍ୟ ରଚନାରେ ମନୋନିବେଶ କରିଥିଲେ । ସ୍ମୃତିତୀର୍ଥରେ ପୂର୍ବବର୍ତ୍ତୀ ଧୁରୀଣ ନାଟ୍ୟଶିଳ୍ପୀ ସ୍ୱର୍ଗତ ରାମଚନ୍ଦ୍ରଙ୍କ ନାଟକର ବାସ୍ତବଧର୍ମିତା ସହିତ ଓଡ଼ିଶାରେ ନବନାଟ୍ୟ ଚେତନାର ପଥକୃତ ନାଟ୍ୟକାରମାନଙ୍କ ପରୀକ୍ଷା, ପ୍ରୟୋଗର ବିଶ୍ଳେଷିତ ଧାରାକୁ ପୁଞ୍ଜି କରି ଆଲୋଚ୍ୟ ସ୍ରଷ୍ଟା ରାମଚନ୍ଦ୍ର ନିଜ ନାଟକ ନିମନ୍ତେ ଏକ ସୁଦୃଢ଼ ଭିତ୍ତି ନିର୍ମାଣ କରିଛନ୍ତି । ସଂକଳ୍ପବଦ୍ଧ ସ୍ରଷ୍ଟା ଶ୍ରୀଯୁକ୍ତ ମିଶ୍ରଙ୍କର ପ୍ରତ୍ୟେକ ନାଟକ ଗୋଟିଏ ଗୋଟିଏ ପରୀକ୍ଷିତ ପ୍ରତିଶ୍ରୁତି କହିଲେ ସତ୍ୟର ଅପଳାପ ହେବନାହିଁ । ଉଭୟ ପଥାସିଦ୍ଧ ଏବଂ ପରୀକ୍ଷାମୂଳକ ନାଟକ ରଚନା କରିଥିଲେ ବି' ତାଙ୍କ ପରୀକ୍ଷା ଧର୍ମୀ ନାଟକଗୁଡ଼ିକରେ ପରୀକ୍ଷା ଓ ପ୍ରୟୋଗର ଏକ ସ୍ୱତନ୍ତ୍ର ଉପସ୍ଥାପନା ଅନୁଭୂତ ହୁଏ ।

ନୀରବ ସାଧକ ଅଧ୍ୟାପକ ରାମଚନ୍ଦ୍ର ମିଶ୍ର ଉତ୍ତର ସତୁରୀରେ ତାଙ୍କର ଲେଖନୀ ଚାଳନା କରି ଓଡ଼ିଶା ବିଭିନ୍ନ ପ୍ରତିଷ୍ଠିତ ମଞ୍ଚରେ ଦର୍ଶକୀୟ ସ୍ୱୀକୃତି ଲାଭକରିଛନ୍ତି । ତାଙ୍କର ପ୍ରତିଟି ପ୍ରତିଶ୍ରୁତି ଏକ ଏକ ନୂତନ ସ୍ୱାକ୍ଷର ବହନ କରି ବେଶ ଚଳଚଞ୍ଚଳ । ରାମଚନ୍ଦ୍ର ସ୍ୱୀକ୍ଷାମାନସ ଶୋଣିତ ସ୍ୱାକ୍ଷର (୧୯୭୬), ଉପତ୍ୟକାର ହଂସ (୧୯୭୮), ଅନେକ ଛାଇ ଅସରନ୍ତି ଅନ୍ଧାର (୧୯୭୯, ଏକ ସୂର୍ଯ୍ୟ ଅନେକ ପୃଥିବୀ (୧୯୮୦), ମରୁମନ୍ଥନ (୧୯୮୦), ଏକାନ୍ତ ନିଜସ୍ୱ (୧୯୮୨) ବାଲ୍ମିକୀ ଉବାଚ (୧୯୮୩), ନାୟିକାର ନାଁ ଲୁସି (୧୯୮୪), ଆମେ ଅକିଞ୍ଚନ (୧୯୮୪), ଏମିତି ଚାଲିଛି (୧୯୯୫), ମହିଷାସୁରର ଆତ୍ମହତ୍ୟା (୧୯୯୭), ବାପା (୨୦୦୬) ଓ ମେଳା (୨୦୧୨) ପ୍ରଭୃତି ନାଟକ ସୃଷ୍ଟି କରିବା ସହିତ ସଂଖ୍ୟାଧିକ ଏକାଙ୍କିକା ସୃଷ୍ଟି ଓଡ଼ିଆ ନାଟ୍ୟଧାରାରେ ନିଜର ସ୍ୱତନ୍ତ୍ରତା ବଜାୟ ରଖିଛନ୍ତି । ତାଙ୍କ ପ୍ରକାଶିତ ଏକାଙ୍କିକାଗୁଡ଼ିକ 'ପୁନଶ୍ଚ ଆଲୋକ' (ପରଶମଣି, ପୁନଶ୍ଚ ଆଲୋକ, ଅଭିମାନିନୀର ଆଲିଙ୍ଗନ, ଏକ ଦ୍ୱନ୍ଦ୍ୱନୀ, ଜନନୀ ଜନ୍ମଭୂମିଶ୍ଚ), 'ଗାନ୍ଧାରୀର ଅଶ୍ରୁ' (ଜିତା ବା ଭୋକ୍ଷସେ ମହାମ୍, ନୂଖୁରୀ, ଦେଶର ବାସ୍ନା ଈଶ୍ୱର ଆଲ୍ଲା ତେରେ ନାମ୍, ଗାନ୍ଧାରୀର ଅଶ୍ରୁ), 'ବଂଶବୃକ୍ଷ' (ବାସୁକୀ, ଘର, ଫେରିବାଲା, ନୂଆଆଶା, ବଂଶବୃକ୍ଷ, ଭାଇଭାଗ, ବୁଢ଼ାପୁଅ, ଶେଷପର୍ବ, ଅନ୍ୟପକ୍ଷ, ଗାଁ ମାଟି) ସଂକଳନମାନଙ୍କରେ ସଂକଳିତ । ଉଲ୍ଲିଖିତ ନାଟକ ଓ ଏକାଙ୍କିମାନଙ୍କରେ ନାଟ୍ୟକାର ମଞ୍ଚାୟନ, ଚରିତ୍ରାୟଣ ତଥା ବିଷୟବସ୍ତୁ ଅବତାରଣାରେ ପରୀକ୍ଷା ଓ ପ୍ରୟୋଗର ନୂତନତା ପ୍ରଦର୍ଶନ କରିଛନ୍ତି । ତାଙ୍କ ପରିକଳ୍ପିତ ବାଲ୍ମିକୀ ଉବାଚ ଓ ମହିଷାସୁରର ଆତ୍ମହତ୍ୟା ନାଟକ ଦୁଇଟିକୁ 'ମିଥ୍‌ ଡ୍ରାମା' ଭାବରେ ଗ୍ରହଣ କରାଯାଇପାରେ । ଆଲୋଚ୍ୟ ନାଟକ 'ମରୁମନ୍ଥନ' ଓଡ଼ିଆ ନାଟକ କ୍ଷେତ୍ରରେ 'ପ୍ରତୀକାତ୍ମକ ନାଟକ' ଭାବରେ ଆଲୋଚନାର ଅପେକ୍ଷା ରଖେ ।

ସେଦିନ 'WEST LAND'ର କବି 'T.S. ELIOT'ଙ୍କ ଚେତନାରେ 'Rock-Rock-Rock, No water' ଗୁଞ୍ଜରିତ ହୋଇ ବିଶ୍ୱ ସାହିତ୍ୟରେ ଚାଞ୍ଚଲ୍ୟ ସୃଷ୍ଟି କରିଥିଲା । ଅର୍ଥାତ୍ ସର୍ବତ୍ର ପ୍ରସ୍ତରର ଆସ୍ତରଣ, ଜଳ ନାହିଁ । ଜଳ ବିନା ଶୁଷ୍କ, ନିରସ ପ୍ରସ୍ତରୀଭୂତ ଏ ସମାଜ, ଏ ସଭ୍ୟତା । ପାରିପାର୍ଶ୍ୱିକ ପରିବେଶ ରୁକ୍ଷତାକୁ ଆବୋରି ବସିଛି । ଯନ୍ତ୍ରଣା ଜର୍ଜରିତ ଆଧୁନିକ ମଣିଷ ଯୁଗଯନ୍ତ୍ରଣାର ଶିକାର ହୋଇଛି । ଆଧୁନିକ ସଭ୍ୟତା ନାମରେ ସଭ୍ୟ ମଣିଷ ସଭ୍ୟତାର ପୋଡ଼ାଭୂଇଁରେ ଠିଆହୋଇ କେବଳ ଆର୍ତ୍ତଚିତ୍କାର କରୁଛି ମାତ୍ର । ନୈରାଶ୍ୟର ଉଷ୍ମଶ୍ୱାସ ତାକୁ ପ୍ରତି ମୁହୂର୍ତ୍ତରେ କରୁଛି ଅନିଃଶ୍ୱାସୀ । ଆଜିର ମଣିଷ ଏପରି ଏକ ସମାଜ ଭିତରେ ଚଲାଫେରା କରୁଛି, ଯେଉଁଠି ସତ୍ୟ ଆହତ, ଶାନ୍ତି ପ୍ରତିହତ, ନୀତି ବିପର୍ଯ୍ୟସ୍ତ, ନୈତିକତା ସ୍ଖଳିତ, ଯେଉଁଠି ବଂଚିବା ନୁହେଁ, ବରଂ ବଂଚିବା ମରିବା ସମାନ, ସବୁ ଏକାକାର । ସାମ୍ପ୍ରତିକ ସମାଜରେ ସଭିଏଁ ଜଣେଜଣେ ଜୀୱନ୍ତା ଶବ । ସେମାନେ ସମସ୍ତେ ଯେଯାହାର ଶବକୁ ନିଜନିଜ କାନ୍ଧରେ ବହନକରି ଜଣେ ଜଣେ 'ଶବବାହକ' । ଏ ଅଶାନ୍ତ ବାତାବରଣର ସ୍ରଷ୍ଟା ଅନ୍ୟକେହି ନୁହେଁ, ମଣିଷ ନିଜେ । କାରଣ ତା'ଭିତରେ ଥିବା ନୀତିହୀନତା, ତାକୁ ଗ୍ରାସିଥିବା ଲୋଭ-ଅହଙ୍କାର, ତାକୁ ବିଚଳିତ କରୁଥିବା ଅବଦମିତ ଆକାଙ୍କ୍ଷା, ତାକୁ କବଳିତ କରିଥିବା ଛଳନାସର୍ବସ୍ୱ ମାନସିକତା ତା' ପାଖରୁ ସୁଖ, ଶାନ୍ତି, ଆନନ୍ଦକୁ ଅପହରଣ କରିନେଇଛି । ଆଶା ପାରିଜାତ ଆଜି ତା'ପାଇଁ ନୈରାଶ୍ୟର ଉତ୍ତପ୍ତ ମରୁବାଲି । ସର୍ବସ୍ୱ ହରାଇ ସେ ଆଜି ନିଃସ୍ୱ, ଅସହାୟ, ନିଃସଙ୍ଗ । ନିଃସଙ୍ଗତା ବ୍ୟାଧିର ଶିକାର ହୋଇ ମଣିଷ ଭୁଲିଛି ସମାଜକୁ ତଥା ନିଜସ୍ୱ ପରିଚୟକୁ । ନିଜେ ନିଜପାଇଁ ଅପରିଚିତ ହୋଇଯାଇଥିବା ସେ; ସମସ୍ତଙ୍କ ହାତପାଆନ୍ତା ଠାରୁ ଦୂରରେ, ଏକ ଅପହଞ୍ଚ ଇଲାକାରେ । ମାନସିକ ଦୃଷ୍ଟିରା ମଧ୍ୟରେ ସନ୍ତୁଳନ ହରାଇ ବସିଥିବା ମଣିଷ ଆଜି

ସ୍ଥିତିହୀନ- ଅବ୍ୟବସ୍ଥିତ । ଏପରି ଏକ ନୈରାଶ୍ୟ ସର୍ବସ୍ୱ ଚିନ୍ତାଧାରା ଭିତରେ ଛନ୍ଦି ହୋଇପଡ଼ିଥିବା ମଣିଷ ସମାଜ ଜୀବନରେ ପରାଧୀନ ଓ ବିଶୃଙ୍ଖଳ । ମନର ଗୋଲାମ ସେ, ବିବେକଠାରୁ ବହୁ ଦୂରରେ । ଏପରିଏକ ଅସ୍ଥୃ, ପ୍ରଶ୍ନବାଚୀ ମଣିଷକୁ କରିଛି ବ୍ୟସ୍ତ, ବିବ୍ରତ ଓ ଭୀତତ୍ରସ୍ତ । ସମାଜ ଭିତରେ ଥାଇ ସେ ଯାହା ଗୁହେଁ ତାହା ପାଏନା, ଯାହା ପାଇଛି ହୁଏତ ସେ ତାହା ଗୁହୁଁନଥିଲା । ନିଜେ ଯାହା ତାହା ଦେଖାଏନାହିଁ, ଯାହା ଦେଖାଏ ହୁଏତ ସେ ତାହାନୁହେଁ । ତେଣୁ ସେ ଛଳନା କରେ, ପ୍ରତାରଣା କରେ, ଅଭିନୟ କରେ; ସେ ସ୍ପଷ୍ଟ ନୁହେଁ ଅସ୍ପଷ୍ଟ । ଆଧୁନିକ ମଣିଷର ଏହି ପରିଚିତିକୁ ନେଇ ସାହିତ୍ୟର ସୃଷ୍ଟି । ତାହା କାବ୍ୟହେଉ, ଉପନ୍ୟାସ ହେଉ, ଗଳ୍ପହେଉ ଅଥବା ନାଟକ ହେଉ; ଚିନ୍ତା, ଚେତନା, ଏକ ତଥାଅଭିନ୍ନ ।

ଆଧୁନିକ ଓଡ଼ିଆ ନାଟକରେ ପରୀକ୍ଷା ପ୍ରୟୋଗ ଧାରାକୁ ଅନୁସରଣ କରି ନାଟ୍ୟକାର ଅଧାପକ ରାମଚନ୍ଦ୍ର ମିଶ୍ରଙ୍କ 'ମରୁମନ୍ଥନ' ନାଟକ ସୃଷ୍ଟି । ଟି.ଏସ୍. ଇଲିୟଟ୍ଙ୍କ 'West Land' କାବ୍ୟର ଉଚ୍ଚାରଣ ପରି ନାଟ୍ୟକାର ଅଧାପକ ରାମଚନ୍ଦ୍ର ମିଶ୍ର ମଧ ତାଙ୍କ ନାଟକ 'ମରୁମନ୍ଥନ'ରେ ଉଚ୍ଚାରଣ କରିଛନ୍ତି, 'Sand! Sand! Sand! No water'. ସେଠି କେବଳ ପଥର, ଜଳର ସଭା ନାହିଁ; ଏଠି କେବଳ ବାଲି, ଜଳର ସନ୍ଧାନ ଗୁଳିଛି । ଆଶ୍ୱାସନା ହିଁ ଏକମାତ୍ର ପାର୍ଥକ୍ୟ । ଚେତନା ଏକ, ପରିପାଟୀ, ପରିବେଷଣରେ ଯାହା ଭିନ୍ନତା । ନାଟକର ଶୀର୍ଷକ 'ମରୁମନ୍ଥନ'କୁ ବିଶ୍ଳେଷଣ କଲେ ତାହା ଓଡ଼ିଆ ନାଟକରେ ନବନାଟ୍ୟ ଆନ୍ଦୋଳନର ବାର୍ତ୍ତାବହ ନାଟ୍ୟକାର ମନୋରଞ୍ଜନ ଦାସଙ୍କ 'ସାଗର ମନ୍ଥନ' ନାମକରଣର ଅପେକ୍ଷା ରଖେ । 'ସାଗର ମନ୍ଥନ' ନାଟକରେ ନାଟ୍ୟକାର ମନରୂପୀ ସାଗରକୁ ମନ୍ଥନ କରି ତା'ର ନିର୍ଯ୍ୟାସ ଦର୍ଶକଙ୍କ ନିକଟରେ ପରଷିଥିବା ପରି 'ମରୁମନ୍ଥନ' ନାଟକରେ ଜୀବନ ମରୁକୁ ମନ୍ଥନ କରାଯାଇ ଆଶା, ଶାନ୍ତି, ଆନନ୍ଦ ରୂପକ ଜଳର ସନ୍ଧାନ କରାଯାଇଛି । ନୈରାଶ୍ୟର ବାଲି ଖୋଳିବା ଭିତରେ ବିଭିନ୍ନ ତୃଷାରେ ଆତୁର ଆଜିର ମଣିଷ ଜଳ ସନ୍ଧାନ ଚେଷ୍ଟା ଜାରିରଖିଛି । ତେବେ ସେ 'ସାଗର ମନ୍ଥନ' ହେଉ ବା 'ମରୁମନ୍ଥନ' ହେଉ, ଏହାର ମୂଳଉତ୍ସ ହେଉଛି 'ସମୁଦ୍ର ମନ୍ଥନ' ମିଥ୍ । ପୁରାଣ ଯୁଗରେ ଦେବ ଓ ଅସୁର ମିଶି ସମୁଦ୍ର ମନ୍ଥନ କରି ସେ ଲୁଣିପାଣି ଭିତରୁ ଐରାବତ, ଉଚ୍ଚୈଃଶ୍ରବା, ପାରିଜାତ, ଲକ୍ଷ୍ମୀ, ବିଷ, ଅମୃତ ପ୍ରାପ୍ତ ହେଲାପରି ଜୀବନ ମରୁକୁ ମନ୍ଥନ କଲେ, ବିଶ୍ଳେଷଣ କଲେ ବା ତର୍ଜମା କଲେ ସେପରି ଅନେକ ଭାବବସ୍ତୁର ସନ୍ଧାନ କରିହୁଏ । କାରଣ ମଣିଷ ମନର ଗୋପନୀୟ ଭଣ୍ଡାର ମଧରେ ଅନେକ କାମନା ଅନେକ ଚେତନା ଅବଦମିତ ଅବସ୍ଥାରେ ମହଜୁଦ ଥାଏ । ତାହାକୁ ଉନ୍ମୋଚିତ କରି ନାଟକ ମାଧମରେ ପରିବେଷଣ କରିବା ପ୍ରତ୍ୟେକ ପରୀକ୍ଷାଧର୍ମୀ ନାଟ୍ୟକାରଙ୍କର ଧର୍ମ । 'ମରୁମନ୍ଥନ' ନାଟକରେ ତାହା କେବଳ କରାଯାଇଛି ମାତ୍ର ।

ପରୀକ୍ଷାଧର୍ମୀ ନାଟକରେ 'ଶବ' ଚେତନା ଏକ ଆଧୁନିକ ଶୈଳୀ ଭାବରେ ପ୍ରତୀକିତ । 'ଶବ'କୁ କେନ୍ଦ୍ରକରି ପାଶ୍ଚାତ୍ୟ ନାଟକ ଠାରୁ ବିଭିନ୍ନ ପ୍ରାଦେଶିକ ନାଟକ ଦେଇ ଓଡ଼ିଆ ନାଟକ ପର୍ଯ୍ୟନ୍ତ ନାଟ୍ୟକାରମାନେ ନିଜନିଜର ପ୍ରତୀକାମ୍ବକ ବିଶ୍ଳେଷଣ କରିସାରିଛନ୍ତି । ଗତାନୁଗତିକ ଧାରାରେ ଇଂରାଜୀ ନାଟ୍ୟକାର ସେକ୍ସପିୟରଙ୍କ ନାଟକରେ 'ଶବ' ସ୍ଥାନିତ ହୋଇଥିଲେ ହେଁ ପରୀକ୍ଷା ନିରୀକ୍ଷା ଭିତରେ 'ଶବ'ର ମନୋଜ୍ଞ ପ୍ରୟୋଗ ରୁମାନିଆ ନାଟ୍ୟକାର ଇଉଜିନ୍ ଆୟୋନେସ୍କୋଙ୍କ 'Ame-dee' ନାଟକରେ ପରିଦୃଷ୍ଟ ହୁଏ । ସେ ଚେତନା ଟିକକ କେବଳ ପାଶ୍ଚାତ୍ୟ ନାଟ୍ୟ ଧାରାରେ ସୀମିତ ନରହି ସମୟ ପ୍ରବାହରେ ତାହା ଭାରତୀୟ ବିଭିନ୍ନ ପ୍ରାଦେଶିକ ନାଟକରେ

ପ୍ରତିଫଳିତ ହୋଇଛି । ବଙ୍ଗଳା ନାଟ୍ୟକାର ବାଦଲ୍ ସରକାରଙ୍କ 'ପାଗ୍ଲା ଘୋଡ଼ା' ଓଡ଼ିଆ ନାଟ୍ୟକାର ବିଜୟ ମିଶ୍ରଙ୍କ 'ଶବବାହକ ମାନେ', ଦାଶରଥି ପ୍ରସାଦ ଦାଶଙ୍କ 'ନିଷିଦ୍ଧ ଅନ୍ଧାର', ପ୍ରଫୁଲ୍ଲ କୁମାର ରଥଙ୍କ 'ଶବ ପଡ଼ିଛି' ଓ ଅଧ୍ୟାପକ ରାମଚନ୍ଦ୍ର ମିଶ୍ରଙ୍କ 'ମରୁମନ୍ଥନ' ପ୍ରଭୃତି ନାଟକ ମାନଙ୍କରେ 'ଶବ'କୁ ନେଇ ବିଭିନ୍ନ ପରୀକ୍ଷା, ନିରୀକ୍ଷା କରାଯାଇଛି । 'ଶବ'କୁ ନେଇ ଉଲ୍ଲିଖିତ ନାଟକମାନ ରଚିତ ହୋଇଥିଲେହେଁ କେହି କାହାର ଅନୁକରଣ ନୁହନ୍ତି, ବରଂ ଭାବ-ଚେତନା ଦୃଷ୍ଟିରୁ ପ୍ରତ୍ୟେକେ ସ୍ୱୟଂସ୍ୱତନ୍ତ୍ର ।

'କାମନାର ବିନାଶରେ ଦୁଃଖର ବିନାଶ' ବୋଲି ବୁଦ୍ଧବାଣୀ ହୋଇଥିଲେ ହେଁ, ସ୍ୱୟଂ ବୁଦ୍ଧଦେବ ତାହା ପାରିନଥିଲେ । ରକ୍ତମାଂସଧାରୀ ମଣିଷ ପକ୍ଷରେ ଏହା କେବଳ ଉଚ୍ଚାରଣ ସର୍ବସ୍ୱ, ଆଚରଣରେ ପ୍ରତିପାଦନ କରିବା ଦୁରୂହ ବ୍ୟାପାର । ନାଟ୍ୟକାର ଡ଼. ରତ୍ନାକର ଚଇନି 'ମରୁମନ୍ଥନ' ନାଟକର କିଞ୍ଚିତ୍ ପୃଷ୍ଠାରେ ଉଲ୍ଲେଖ କରିଛନ୍ତି, 'କାମନାକୁ ପ୍ରାଧାନ୍ୟ ଦେଇ, କ୍ଷମତାରେ ମଦମତ୍ତ ହୋଇ, ନିଜକୁ ସଂଯମ ନକରି ଶେଷହୀନ ତୃଷାର ଶିକାର ହେଲେ ମଣିଷ ଆଉ ମଣିଷ ପଦବାଚ୍ୟ ହୋଇ ରହେନା । ସେ ପାଲଟିଯାଏ କାମନାର ଏକ ଉଦ୍‌ଭ୍ରାନ୍ତ ଦାସ ।' ନାଟ୍ୟକାର ଶ୍ରୀ ମିଶ୍ର ମଣିଷର ଏହି ସ୍ୱାଭାବିକତାକୁ ନାଟ୍ୟରୂପ ଦେଇଛନ୍ତି ଏକ ଅଭିନବ ଶୈଳୀରେ । ନିଃସଙ୍ଗ ବ୍ୟକ୍ତିତ୍ୱର ନାଟ୍ୟଶାଳାରେ ମଣିଷ ଆଜି ଏକାକୀ କଳାକାର । ତା' ଚତୁଃପାର୍ଶ୍ୱର ଦୁନିଆଁ ସବୁଚିମାରରା ସ୍ନେହ, ପ୍ରୀତିର ନନ୍ଦନକାନନ ନୁହେଁ, ବରଂ ଶେଷହୀନ ମରୁଭୂମି । ତୃଷା ମେଣ୍ଟାଇବା ପାଇଁ ଅନେକ ଅନ୍ବେଷା, କିନ୍ତୁ କାହିଁ ସେ ଓଏସିସ୍, ମରୁଦ୍ୟାନ; ଯେଉଁଠି ସେ ଟିକିଏ ଆଶ୍ରୟ ନେଲେ ଶାନ୍ତି ପାଇବ ?

ପ୍ରତୀକାମୂକ, ପ୍ରୟୋଗଧର୍ମୀ, ପରୀକ୍ଷାମୂଳକ ନାଟକ ଭାବରେ 'ମରୁମନ୍ଥନ' ନାଟକର ଏକ ନିର୍ଦ୍ଦିଷ୍ଟ ସ୍ୱାତନ୍ତ୍ର୍ୟ ରହିଛି । ଶବ୍ଦ ପ୍ରତୀକ, ବସ୍ତୁ ପ୍ରତୀକ ସହିତ ପ୍ରତୀକାମୂକ ଚରିତ୍ରମାନଙ୍କୁ ନେଇ ଏ ନାଟକରେ ନାଟ୍ୟକାର ସ୍ୱ କଳାକୁଶଳତା ପ୍ରମାଣ କରିଅଛନ୍ତି । ନାଟ୍ୟକାର ନାଟକ ସଂପର୍କରେ ଆପଣାର ସ୍ୱୀକାରୋକ୍ତି ମାଧ୍ୟମରେ କୁହନ୍ତି, 'ନିରାଶାର ମରୁବାଲି ଭିତରେ ମୁଁ ଖୋଜିଛି କିଛି ଆଶାର ଝର.. କିଛି ମୁକ୍ତି... କିଛି ଶାନ୍ତି.... କିଛି ସମାଧାନ.... କିଛି ଗୋଟାଏ ଉତ୍ତର... । ବାଲି ଆଢ଼େଇଛି, ଖୋଳିଛି- ସଂଝରେ, ସକାଳରେ, ଭରପୁର ମଧ୍ୟାହ୍ନରେ, ଘର୍ମାକ୍ତ ଅପରାହ୍ନରେ... ଏ ମୋର 'ମରୁମନ୍ଥନ'... । ଆଧୁନିକ, ସଭ୍ୟ, ଶିକ୍ଷିତ ବୋଲାଉଥିବା ମଣିଷର ଜୀବନ ଦର୍ଶନ ପୃଷ୍ଠପଟକୁ ନେଇ 'ମରୁମନ୍ଥନ' ନାଟକର ବୁଦ୍ଧ ପରିକଳ୍ପିତ । ଓଡ଼ିଆ ନାଟ୍ୟାକାଶରେ ନବନାଟ୍ୟ ଚେତନା (ପରୀକ୍ଷା, ପ୍ରୟୋଗ)ର ଧାରା କ୍ଷୀଣ ହୋଇ ଆସୁଥିବାବେଳେ ୧୯୮୦ ମସିହାରେ 'ମରୁମନ୍ଥନ'ର ସୃଷ୍ଟି ହୋଇଥିବାରୁ ନାଟକ ମଧ୍ୟରେ ନବନାଟ୍ୟ ଚେତନାର ସମସ୍ତ ନିର୍ଯ୍ୟାସ ଉପଲବ୍ଧ ।

'ମରୁମନ୍ଥନ' ନାଟକର ପ୍ରତିପାଦ୍ୟ, ନାଟକର ଆଭାସ ପର୍ଯ୍ୟାୟରେ ପ୍ରଦର୍ଶିତ । କାମାତୁର, କ୍ଷମତାନ୍ଧ, ଧନଲିପ୍ସୁ, ସଂଯମହୀନ, ବିଶୃଙ୍ଖଳ, ଛଳନାସର୍ବସ୍ୱ, ମୁଖ୍ୟଧାରା ଆଧୁନିକ ମଣିଷକୁ ପ୍ରତିନିଧିତ୍ୱ କରୁଥିବା ତିନିଜଣ ଚରିତ୍ର; ସାଗର, ସମର, ସଂପଦଙ୍କ ଭିତରେ ଯୌନତାର ପ୍ରତୀକ କାମାତୁର ବିଷ୍ଣୁଦାସ, ଧନଲିପ୍ସୁ ଗଜନୀର ସୁଲତାନ୍ ମାମୁଦ, ଅଧିକାର ପ୍ରବଣ କ୍ଷମତାନ୍ଧ ଚଣ୍ଡାଶୋକ ସବାର ହୋଇଛନ୍ତି । ନାଟ୍ୟକାର ନିଜର ବିଶ୍ଲେଷଣାମୂକ ଦୃଷ୍ଟିଭଙ୍ଗୀ ଦେଇ ଅତି ଚମତ୍କାର ଭାବରେ ପୁରାଣର ବିଷ୍ଣୁଦାସ, ଇତିହାସର ମାମୁଦ ଓ ଅଶୋକଙ୍କୁ ଯଥାକ୍ରମେ ଯୌନତା, ଧନଲିପ୍ସା ଓ କ୍ଷମତାଲାଳସୀ ମଣିଷର ଛାୟାଛବି ରୂପେ ପ୍ରତିକୀତ କରିଛନ୍ତି । ଏହି ମିଥ୍‌କ ଚରିତ୍ରମାନେ ଆଜିବି ବିଭିନ୍ନ ହୃଦୟର ଶୋଷ ଭାବରେ ଅବସ୍ଥାନ କରୁଛନ୍ତି ।

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

ନେପଥ୍ୟ ଉଚ୍ଚାରିତ 'ସଂସାର ଧ୍ୱନି ଚାପଛାଡ଼ୁ କିରଣ...' ଶ୍ଲୋକରୁ ନାଟକର ପ୍ରାରମ୍ଭ । ଚଞ୍ଚଳ ବୃତ୍ତିର ସଂସାର ପ୍ରଚଣ୍ଡ ସୂର୍ଯ୍ୟକରଣ୍ଡ ପରି ଉତ୍ତପ୍ତ । ବ୍ୟଥା, ଯନ୍ତ୍ରଣା ଓ କ୍ରନ୍ଦନ ମଧ୍ୟରେ ଅବରୁଦ୍ଧ ମଣିଷ ସଂସାର ରୂପକ ମରୁଭୂମି ଭିତରୁ ସୁଖ, ଶାନ୍ତି, ଆନନ୍ଦର ଜଳ ଖୋଜୁଖୋଜୁ ମରୀଚିକା ଭ୍ରମରେ ପଡ଼ି ଦହଳବିକଳ ହେଉଛି । ସେଥିରୁ ତା'ର ମୁକ୍ତି କାହିଁ? ତଥାପି ସେ ସୁଖ, ଶାନ୍ତି, ମୁକ୍ତିର ସନ୍ଧାନ କରୁଛି; ସ୍ୱପ୍ନ ଦେଖୁଛି । ନାଟ୍ୟକାର ଏ ନାଟକର ମଂଚସଜ୍ଜା ଭାବରେ ଅନ୍ତହୀନ ବିସ୍ତୀର୍ଣ୍ଣ ମରୁପ୍ରାନ୍ତରକୁ ନିର୍ଦ୍ଦେଶ କରିଛନ୍ତି । ସମାଜ ରୂପକ ମରୁଭୂମିରେ ଗଦାଗଦା ନୈରାଶ୍ୟର ବାଲିସ୍ତୂପ ମଧ୍ୟରୁ ସୁଖ-ଶାନ୍ତି-ଆନନ୍ଦ ରୂପୀ ଜଳର ସନ୍ଧାନ କରିଚାଲିଛନ୍ତି ତିନିଜଣ କାମନାଗ୍ରସ୍ତ ମଣିଷ । ବିରାଟ ମରୁପ୍ରଦେଶରେ ମରୀଚିକା ଜଳର ମାୟା ସୃଷ୍ଟି କରୁଛି ସିନା, ଶୋଷ ମେଣ୍ଟୁନି । ତୃଷାରେ ଆତୁର ସେମାନେ ଜଳ ଟୋପାଏ ବିନା ଆର୍ତ୍ତଚିତ୍କାର କରୁଛନ୍ତି । ଟୋକେ ପି, ଦଣ୍ଡେ ଭାଙ୍ଗିବାର ପ୍ରଚେଷ୍ଟା ଭିତରେ ସେମାନେ ସାମ୍ନା କରୁଛନ୍ତି ଜୀବନର ନିଷ୍ଠୁର ବାସ୍ତବତାକୁ । ସେମାନେ ଅନ୍ୟ କେହି ନୁହଁନ୍ତି, ବରଂ ଆମେ ସଭିଏଁ । ନିଜ ଅବଦମିତ ଅପରାଧ ପ୍ରବଣତା ସଂପର୍କରେ ସଚେତନ ହେବାକାଳରେ ନିଜ ଭିତରେ ଥିବା ବିବେକ ବୋଧ 'ତଥାଗତ' ରୂପରେ ଆତ୍ମପ୍ରକାଶ କରି ସେମାନଙ୍କ ଛଳନାସର୍ବସ୍ୱ ମାନସିକତାକୁ ବିଦ୍ରୂପ କରିଛି । ଜୀବନମରୁର ସେ ହେଉଛି ରାଜା, ରକ୍ଷକ । ମାତୃଗର୍ଭରୁ, ଜନ୍ମ ମୁହୂର୍ତ୍ତରୁ ବିବେକ ସହିତ ମଣିଷର ସଂପର୍କ ଅବିଚ୍ଛେଦ୍ୟ ହେଲେହେଁ ସେ ଭୁଲିଛି ତା'ର ନିର୍ଦ୍ଦେଶ । ତା'ର ସତର୍କ ଚେତାବନୀକୁ ଅସ୍ୱୀକାର କରି ସେ ବାରମ୍ବାର ବିପଦର ସମ୍ମୁଖୀନ ମଧ୍ୟ ହୋଇଛି । ଜୀବନମରୁରେ ଅନେକ ବାଲିଝଡ଼; ଅନେକ ଦୁର୍ଦ୍ଦଶା, ସମାଧାନ ଯନ୍ତ୍ରଣା । ସେଥିରୁ ମୁକ୍ତି ନିମନ୍ତେ ମଣିଷର ଅହରହ ପ୍ରଚେଷ୍ଟା । ମନରେ ଅନେକ ପ୍ରଶ୍ନବାଚୀ । ସେଥିରୁ ସେ ଉଦ୍ଧାର ପାଇବ କିପରି? କିଏ ଏହି ପ୍ରଚଣ୍ଡ ମରୁରେ ରକ୍ଷକ? ବିବେକର ନିର୍ଦ୍ଦେଶ 'ଯାଅ, ସେଠିକି, ବିରାଟ ଓଟଟା ମୋର ସେଠି ଶୋଇ ରହିଛି । କୁଜଟାକୁ ଉପରକୁ କରି.. ଯାଅ ତା'ରି କଡ଼ରେ ଲମ୍ବ ହୋଇ ଶୋଇଯାଅ । ଝଡ଼କୁ ଜିଣିନେବା ପାଇଁ ଯଥେଷ୍ଟ ଶକ୍ତି ଅଛି ସେହି ପଶୁଟାର ।' ମରୁଭୂମିରେ ଓଟ; ମରୁଭୂମିର ଜାହାଜ, ବାହକ ଓ ରକ୍ଷକ । ଓଟ ପୁଣି ଓଟର କୁଜ; ମଣିଷ ଭିତରେ ଥିବା ସରଳ, ନିରୀହ ପଣିଆକୁ ଚିହ୍ନାଏ । ନାଟ୍ୟକାର ବିଜୟ ମିଶ୍ର 'ଜଣେ ରାଜାଥିଲେ' ନାଟକରେ 'ଅଛତିକ' ପ୍ରଜା (ଓଟମୁହାଁ) ମାନଙ୍କୁ ସରଳ, ନିରୀହ ପ୍ରଜା ଭାବରେ ଉପସ୍ଥାପିତ କରି କହିଛନ୍ତି,

'ଓଟ ପରି ଜୀବ ନାହିଁରେ ଭାଇ
ଶାନ୍ତି ତୁ ପାଇବୁ ଯା' ଓଟହୋଇ
ପିଠିର କୁଜଟା କେଡ଼େ ସୁନ୍ଦର
ତୋ' ନିରୀହ ଆଖି କି ମନୋହର
କଣ୍ଟା ଝଶ ସିଝୁ ଯା' ଖାଇଯା
ଚାଚିଲା ବାଲିରେ ଯା' ଶୋଇଯା ।'

ସରଳ, ନିରୀହ ପଣିଆକୁ ଆପଣେଇ ମଣିଷ ସଂସାର ଝଡ଼କୁ ଅତିକ୍ରମୀ ଯିବାପରେ ପୁଣି ହେଉଛି ସ୍ୱାଭାବିକ । ତାକୁ ଆଉ ଓଟ ବା ଓଟର କୁଜ ଦୃଶ୍ୟ ହେଉନାହିଁ । ପୁଣି କୁରତା, କୁଟିଳତା ଓ ଜଟିଳତାର ପରିପ୍ରକାଶ । ପ୍ରତିଟି କ୍ଷେତ୍ରରେ 'ଦରିଦ୍ର ପଞ୍ଚାକ୍ଷର' କ'ଣ କରିବାର ଜପ । ଏ ଜୀବନ ମରୁର ରକ୍ଷକ, ସମ୍ରାଟ ହେଉଛି ବିବେକ ।

ନିଜ କର୍ତ୍ତବ୍ୟ ପ୍ରତି ସଚେତନ ରହି ସେ ତା'ର ପ୍ରଜାମାନଙ୍କୁ ସୁରକ୍ଷା ଦେବାପାଇଁ ମାର୍ଗଦର୍ଶନ କରାଉଛି । କିନ୍ତୁ 'ମନ ବୋଲକରା' ମଣିଷ ବିବେକର ଅଦୃଶ୍ୟ ଇଙ୍ଗିତକୁ ଗୁରୁତ୍ୱ ନଦେଇ ଅହରହ ସମସ୍ୟାକୁ ସାମ୍ନା କରିଥିଲିଛି । ବିବେକର ନିର୍ଦ୍ଦେଶରେ ଜଳର ସନ୍ଧାନ କରୁକରୁ ବାଲିଖୋଲି ଥିଲିଛନ୍ତି ସେମାନେ । ଆମ ଐତିହ୍ୟ, ପରମ୍ପରା, ସଂସ୍କୃତି ଆଜି ଭୂ-ଲୁଣ୍ଠିତ ହୋଇ ଲୁପ୍ତପ୍ରାୟ ବାଲୁକାସ୍ତୁପ ମଧ୍ୟରେ ପୋତି ହୋଇପଡ଼ିଛି । ଆଜି ତାହା ବିସ୍ମୃତ । ତା'କୁ ଉଦ୍ଧାର କରିବାକୁ ହେବ । କିନ୍ତୁ କେମିତି ? ସେ ଗର୍ଭରେ ଯେ ଶବ ମାନଙ୍କର ପଟୁଆର । ଗୁପ୍ତ ଚେତନା ମଧ୍ୟରେ ସେ ଶବମାନେ ସୁପ୍ତ । ତୃଷାର୍ତ୍ତ ମଣିଷ ମରୁଭୂମିରେ ଜଳ ସନ୍ଧାନ କରୁକରୁ ଭେଟନ୍ତି ଗଜନୀର ସୁଲତାନ ଇତିହାସର ମାମୁଦ୍‍କୁ । ଇତିହାସ କହେ ଧନଲିପ୍‍ସୁ, ସ୍ୱର୍ଣ୍ଣ ଲିପ୍‍ସୁ ମାମୁଦ ଥରଥର କରି ସତରଥର ହିନ୍ଦୁସ୍ଥାନ ଆକ୍ରମଣ କରିଥିଲା । ସୁନା-ସୁନା-ସୁନା ଗଦାଗଦା ସୁନା, ସୁନାର ପାହାଡ଼- ତଥାପି ଶୋଷ ମେଣ୍ଟୁନି, ଆହୁରି ସୁନା ଆବଶ୍ୟକ । ସୁଲତାନ ମାମୁଦଙ୍କ ଏ ପ୍ରଲୋଭନ ଯୁଗରୁ ଯୁଗକୁ ବ୍ୟାପିବାରେ ଲାଗିଛି । ପ୍ରତ୍ୟେକ ଆଧୁନିକ ମଣିଷ ଭିତରେ ଏହି ମାମୁଦୀୟ ଚେତନା ଟିକକ ଲୁଚି ରହିଛି; ଅର୍ଥ, ଧନ-ସଂପତ୍ତି ଲାଳସା ରୂପରେ । ତେବେ ପାହାଡ଼ ପରି ଗଦାଗଦା ସୁନା ପାଇ ମାମୁଦ କ'ଣ ତୃପ୍ତ ? ତାକର କ'ଣ କାମନାର ତୃଷା ମେଣ୍ଟିଛି ? ବରଂ ପରିଶେଷରେ ସୁନା ନୁହେଁ; ପାଣି ପାଇଁ ବ୍ୟାକୁଳ ମାମୁଦ ଚିତ୍କାର କରିଛନ୍ତି, '...ଓଃ, ଶୋଷ... ଶୋଷରେ ମୋର ଚଣ୍ଡି ଶୁଖିଯାଉଚି । ପାଣି, ପାଣି ଆଣ୍ଟାଏ ଦେଇପାରିବ ?' ସେହି ଅର୍ଥ, ଧନ-ସଂପତ୍ତି କେହି ସେ ଶୋଷକୁ ମେଣ୍ଟାଇ ପାରିବେନି । ସୁନା, ସୁନା କହି ଶୋଷରେ ମୃତ୍ୟୁବରଣ କରିବ ସିନା, ପାଣି ଆଣ୍ଟାଏ ବିନା ତୃପ୍ତି ମିଳିବ ନାହିଁ । ନିଜ କାମନାର ଦାସ ହୋଇ ଆଜିର ମଣିଷ ଆର୍ତ୍ତଚିତ୍କାର ଭିତରେ ମରିମରି ବଞ୍ଚିଛି । ଯେତେଦିନ ପର୍ଯ୍ୟନ୍ତ ଧନ-ସଂପତ୍ତିର ମୋହ ମଣିଷକୁ ଗ୍ରାସିଥିବ, ସେତେକାଳଯାଏଁ ସେ ବାରମ୍ବାର ଇତିହାସର ମାମଦକୁ ଭେଟୁଥିବ ।

ନାଟକରେ ଶାରିଆ ଓ ସପନି ନାଟ୍ୟକାରଙ୍କ ମାନସ ସୃଷ୍ଟ । ପ୍ରକୃତିର ସନ୍ତାନ ସେମାନେ । ସରଳ, ନିରୀହ ଅନ୍ତରାତ୍ମାର ପ୍ରତୀକ । ଜୀବନ ମରୁରେ ସହାୟକ ଚରିତ୍ର । ମରୁଭୂମିରେ ଗୁରୁତ୍ୱପୂର୍ଣ୍ଣ, ମୂଲ୍ୟବାନ ପଦାର୍ଥ ସନ୍ଧାନରେ ଥିବା ତିନି ଯୁବକଙ୍କ ସାହାଯ୍ୟକାରୀ ଚରିତ୍ର ଭାବରେ ନାଟକରେ ସେମାନଙ୍କ ଆବିର୍ଭାବ । ଶାରିଆର ସୁନ୍ଦରତା ଏବଂ ସପନିର ସରଳତାର ସୁଯୋଗ ନେଇଛନ୍ତି ସେମାନେ । ଏମାନଙ୍କର ଜାନ୍ତବ ପ୍ରବୃତ୍ତି ଜାଗି ଉଠିଛି ଶାରିଆକୁ ଦେଖିବା ପରେ । ସାରିଆକୁ ସେମାନେ ତାଙ୍କ ଜୀବନମରୁର ଓୟୋସିସ୍ ବା ମରୁଦ୍ୟାନ ରୂପେ ଜ୍ଞାନ କରିଛନ୍ତି । ପ୍ରୟେଡୀୟ ଯୌନଚେତନା ଆକ୍ରାନ୍ତ ଆଧୁନିକ ମଣିଷ ମନରେ କାମନାର ଉତ୍କଟ ଗନ୍ଧ । ନାଟ୍ୟକାର ମନୋରଞ୍ଜନଙ୍କ 'ଅରଣ୍ୟ ଫସଲ' ନାଟକର 'ସୁନାଖଣି' ପରି ଆଲୋଚ୍ୟ ମରୁମନ୍ଥନରେ 'ବାଲି ହରିଣ'କୁ ଆବିଷ୍କାର କରାଯାଇଛି । ଶାରିଆ ଦେହରେ ବାଲିହରିଣର ନିରୀହତା ଓ ଚଞ୍ଚଳତା ଏ ଯୁବକମାନଙ୍କୁ କରିଛି ଅସ୍ଥିର । ସଂଗୁପ୍ତ କାମଲାଳସା ସେମାନଙ୍କ ହୃଦୟକୁ କରିଛି ଉଗ୍ର, ଧମନୀରେ ରକ୍ତର ଗତିକୁ କରିଛି ତୀବ୍ର । ସେମାନଙ୍କ ଭୋଗବାଦୀ ନାରୀଙ୍କ ମନ ଶାରିଆର ଉଚ୍ଛୁଳା ଯୌବନକୁ ଶୋଷିନେବା ପାଇଁ ସୁଯୋଗ ଅପେକ୍ଷାରେ । ପରମ୍ପରାକୁ ଭାବୋଦି ଧରିଥିବା ସରଳ, ନିରୀହ, ସ୍ୱଚ୍ଛ ମଣିଷ ଆଧୁନିକତାର ସେ ଜଟିଳତା ଓ ଛଳନାକୁ ବୁଝିପାରିନି । ତା'ର ସ୍ୱାଭାବିକ ଗୁଣରେ ସେମାନଙ୍କୁ ବିଶ୍ୱାସ କରିଛି । ଆପଣେଇ ନେଇଛି ।

ମରୁଭୂମିରେ ପୁଣି ବାଲିକଢ଼ାର ପର୍ବ, ଜଳ ଆଶାରେ । ନୋହିଲେ ଭୟଙ୍କର ତୃଷା ସେମାନଙ୍କ

ପ୍ରାଣନେବ । କିଛି ସମୟ ପରେ ବିସ୍ତୃତିର ବାଲୁକା ମଧ୍ୟରୁ ପୁଣି ଏକ ଶବ ର ଆବିର୍ଭାବ ଘଟିଛି । ପୁଣି ଏକ ଚେତନା । ଶବଟି ପୁରାଣ ଚରିତ୍ର ବିଷ୍ଣୁଦାଶର । ଚେତନାଟି ଯୌନତାର । ନିଜ ଘରେ ଅନସୂୟାଙ୍କ ପରି ସତୀ, ସାଧ୍ୱୀ, ସରଳା, ସୁନ୍ଦର, ଉଦାର, ଅନୁଗତ ସ୍ତ୍ରୀ ଥାଇ ମଧ୍ୟ କୁଷ୍ଠରୋଗାକ୍ରାନ୍ତ ପଙ୍ଗୁ, କୁସିତ ବ୍ରାହ୍ମଣ ବିଷ୍ଣୁଦାଶର ଦେହଜୀବୀ, ବାରନାରୀ ଲକ୍ଷହୀରା ପ୍ରତି ଅହେତୁକ ଆକର୍ଷଣ । ଶୟନେ, ସ୍ୱପନେ, ଜାଗରଣେ କେବଳ ଲକ୍ଷହୀରା ପାଇଁ ବ୍ୟାକୁଳତା । କାମନାର ପ୍ରବଳ ଇଉଆର ମଧ୍ୟରେ ଉବୁଟୁବୁ ସେ । ଏଣେ ସ୍ୱାମୀଙ୍କ ସନ୍ତୁଷ୍ଟ ପାଇଁ ଲକ୍ଷହୀରାକୁ ନିଜ ସେବା ବଳରେ ସନ୍ତୁଷ୍ଟ କରିଛନ୍ତି ଅନସୂୟା । ଫଳସ୍ୱରୂପ ଲକ୍ଷହୀରା ସହିତ ଗୋଟିଏ ରାତ୍ରି ଯାପନର ସୁଯୋଗ ପାଇଛନ୍ତି ବିଷ୍ଣୁଦାଶ । ଲକ୍ଷହୀରାର ପ୍ରାସାଦକୁ ଯିବାବେଳେରେ ତଥାଗତ (ବିବେକ) ସହିତ ସାକ୍ଷାତ ହୁଏ, ବିଷ୍ଣୁଦାଶଙ୍କର । କାମାନ୍ଧ ବିଷ୍ଣୁଦାଶ କାମବିଭୋର ହୋଇ ବିବେକକୁ ଅନୁଭବୀ ପାରନ୍ତି ନାହିଁ । ବିବେକ ସହିତ ତର୍କରେ ଜଡ଼ିତ ହୁଅନ୍ତି ସେ । ପରିଶେଷରେ ଲକ୍ଷହୀରାର କାମନାଗ୍ନି ଭିତରକୁ ପତଙ୍ଗ ପରି ଝାସ ଦେଇଥିବାରୁ ବିଷ୍ଣୁଦାଶଙ୍କ ନାମ ଜୀବନ ହିସାବ ଫର୍ଦ୍ଦର ଶୀର୍ଷରେ ବିବେକ ଉଲ୍ଲେଖ କରି ଏପରି ଏକ ଲାମ୍ପଟ୍ୟକୁ ସୁଯୋଗ ଦିଏନାହିଁ; ବରଂ ତାସ୍ଲୟ, ଉପହାସ କରେ । ସତର୍କ, ସଚେତନ ବିଷ୍ଣୁଦାଶଙ୍କ ଅନୁତପ୍ତ ମନ ବ୍ୟାକୁଳ ହୁଏ । କାମନା ତୃଷାରେ ତଣ୍ଟି ଶୁଖିଯାଏ । ବିଷ୍ଣୁଦାଶ ଟୋପାଏ ଜଳ ନିମନ୍ତେ ବ୍ୟସ୍ତ ଓ ବିବ୍ରତ ହୁଅନ୍ତି । ବିବେକର ସାହାଯ୍ୟ ପ୍ରାର୍ଥୀ ସେ । ଅବସ୍ଥା କଣ୍ଟାଗ୍ରତ । ଜୀବନ ଦ୍ୱାରରେ ମୃତ୍ୟୁର ଉପସ୍ଥିତି । ବଂଚିଯିବା ପାଇଁ ମୁଠାଏ ଝରପାଣିର ଆବଶ୍ୟକତା । ସେ ଝର ପାଣି ପାଇବ କେଉଁଠୁ ? ଲାକ୍ଷଣିକ ଭାବରେ ବିବେକର ସୂଚନା ଦେଉଛି, 'ଝର କାହିଁ ଯେ ତୁମକୁ ଝର ପାଣି ଦେବି ? ଝର ସେ ତୁମେ ଅନେକ ପଛରେ ଛାଡ଼ି ଆସିଛ ।' ଅନୁସୂୟାଙ୍କ ପରି ପବିତ୍ର, ଶୁଭ୍ର, ନିର୍ମଳ, ଶୀତଳ ଝରପାଣିକୁ ଛାଡ଼ି ଲକ୍ଷହୀରା ପାଖରେ ଥିବା ଉଗ୍ର ପାନୀୟକୁ ଆଶାକଲେ କେବଳ ଉଚ୍ଛେଜିତ ହେବ ସିନା, ଜୀବନକୁ ଶୀତଳ କରିପାରିବ ନାହିଁ । ଝରପାଣିର ଅଭାବରେ ଝୁରିଝୁରି ଅତୃପ୍ତ, ତୃଷାରେ ଛଟପଟ ବିଷ୍ଣୁଦାଶ ବିସ୍ତୃତିର ବାଲୁକାଶେଯରେ ପୋତି ହୋଇପଡ଼ିଛନ୍ତି । ସେ ଶବକୁ ଆକସ୍ମିକ ଭେଟୁଛନ୍ତି ସାଗର, ସମର, ସଂପଦ । ମାନସିକ ସ୍ତରରେ ବିଷ୍ଣୁଦାଶଙ୍କ ଯୌନ ଚେତନାଟି ସଂଚରୀଯାଇଛି ତିନି ଉଦ୍ଭ୍ରାନ୍ତ ଯୁବକଙ୍କ ଭିତରେ । ଶାରିଆ, ସପନିକ ସ୍ୱଭାବ-ସୁଲଭ ସଂପର୍କ ମଧ୍ୟରେ ଅନାବିଳ ପ୍ରେମର ପରିପ୍ରକାଶ, ନାଟକ ମଧ୍ୟରେ ଭାବାବେଗ ସୃଷ୍ଟି କରିଛି । ଏମାନଙ୍କର ଏ ଭାବାବେଗ ସେମାନଙ୍କ (ସାଗର, ସମର, ସଂପଦ) ଭିତରେ ସୃଷ୍ଟି କରିଛି ସ୍ୱାୟବିକ ଉଚ୍ଛେଜନା । ଶାରିଆ ପ୍ରତି ସେମାନଙ୍କର ଲଳସା ଦୃଷ୍ଟି ସେମାନଙ୍କୁ କରିଛି ତୃଷାର୍ତ୍ତ । ଅତଏବ ସେମାନେ ତୃଷା ନିରାକରଣ ପାଇଁ ଯେତେ ଚେଷ୍ଟା କଲେବି ଶୋଷର ଶେଷନାହିଁ ।

ପୁଣି ଶୋଷ, ପୁଣି ଶବ, ପୁଣି ଏକ ନୂତନ ଚେତନା । ଏଥରର ଶବ ସମ୍ରାଟ ଅଶୋକଙ୍କର । ଇତିହାସ ଯାହାକୁ ଚଣ୍ଡାଶୋକ ନାମରେ ନାମିତ କରିଛି । ପରଂପରାର ସରଳ ମଣିଷ ଠାରୁ ଭିନ୍ନ ଆମେ । ଗୋଟାକପରେ ଗୋଟିଏ ଶବ, ଭିନ୍ନ ରୂପରେ । ସାମ୍ନା କରିବାକୁ ପଡ଼ିବ ସମସ୍ତ ଶବକୁ, ସମସ୍ତ ଚେତନାକୁ । ଚଣ୍ଡାଶୋକର ଧର୍ମାଶୋକ; ଦୀର୍ଘପଥ, ବିପୁଳ ପରିବର୍ତ୍ତନ । ଜଳପାତ୍ର ନୁହେଁ, ବରଂ ଆଞ୍ଜୁଳାଏ ରକ୍ତର ଆବଶ୍ୟକତା ଚଣ୍ଡାଶୋକଙ୍କର । ସେଥିରେ ତାଙ୍କ ତୃଷା ମେଣ୍ଟିବ । ଶକ୍ତି ବଳରେ ଅପରକୁ ଅଧିକାର କରିବାର ସେହି ପ୍ରବୃତ୍ତି ମଣିଷକୁ କରିଛି ଉଦ୍ଭ୍ରାନ୍ତ, ବିଭ୍ରାନ୍ତ । ମଣିଷ ଚାହେଁ ମଣିଷର ତାଜା ରକ୍ତ । ଧଉଳି ପାହାଡ଼ ସମ୍ମୂର୍ଷ୍ଟ ମାନବ ଆର୍ତ୍ତିଚିତ୍କାରରେ ପ୍ରକମ୍ପିତ । ଦୟାନଦୀର ଜଳ ରକ୍ତରଂଜିତ । ଏପରି ଏକ ଚରମ ନିଷ୍ଠୁର ମାନସିକତାକୁ ପ୍ରତିରୋଧ

କରିଛି 'ତଥାଗତ' । ଶବ ଚିହ୍ନଟ କରିବା ଛଳରେ ଚଣ୍ଡାଶୋକର ସମ୍ମୁଖୀନ ହୋଇଛନ୍ତି ସେ । 'ବୀର' ଭାବରେ ମୃତ୍ୟୁବରଣ କରିଥିବା ସହିଦମାନଙ୍କୁ ସମ୍ମାନ ଜଣାଇ ଏ ଅଭାବନୀୟ ଦୃଶ୍ୟର ସ୍ରଷ୍ଟା ସମ୍ରାଟ ଅଶୋକଙ୍କୁ 'ଭୀରୁ' ତାଲିକାଭୁକ୍ତ କରିଛନ୍ତି । ନିଜେ ବୀର ବୋଲି ଦାବିକରି ଅଶୋକଙ୍କର ଦମ୍ଭୋକ୍ତି 'ମୁଁ ଯେ ଲକ୍ଷେ ସୈନ୍ୟଙ୍କୁ ହତ୍ୟା କରିଛି । ଦୁଇଲକ୍ଷକୁ ଆହତ କରି ଚିରଦିନ ପାଇଁ ପଙ୍ଗୁ କରିଦେଇଛି । ପାଞ୍ଚଲକ୍ଷରୁ ଅଧିକଙ୍କୁ ବନ୍ଦୀ କରିପାରିଛି । ମୁଁ ବୀର.. ଭୀରୁ ହୋଇ ନପାରେ'କୁ ଅସ୍ୱୀକାର କରିଛନ୍ତି ତଥାଗତ । ଅହଂକାରର ଅତଃପତିତି । ଅହଂକାରୀ ସମ୍ରାଟ ହୋଇଯାଇଛନ୍ତି ଅବଶ । ଖଡ୍ଗ ଉତ୍ତୋଳନ କରିବାର ଶକ୍ତି ତାଙ୍କର ନାହିଁ । ଯେ ପୋଷପୋଷ ତାଜାର ପାନକରି ଶୋଷ ମେଣ୍ଟାଇବାକୁ ଚାହୁଁଥିଲା; ସେ ପୁନି ବିକଳ, ବ୍ୟାକୁଳ ଭାବରେ ଖୋଜୁଁଛି ମୁହାଏ ପାଣି । କିନ୍ତୁ ଏଠି ଜଳ କାହିଁ ? କେବଳ ରକ୍ତର ସୁଅ, ଯାହାର ସ୍ରଷ୍ଟା ମହାମହିମ ଦିଗ୍‌ବିଜୟୀ ସମ୍ରାଟ ଅଶୋକ । ତଥାଗତଙ୍କ ବିଦ୍ରୂପ ମଧ୍ୟରେ 'ଏଠି ପାଣି କୋଉଠୁ ପାଇବି ? ଏତ କେବଳ ରକ୍ତ ସୁଅ ବୁଟି ଖେଳିଛି' ଅଶୋକ ଅନୁତପ୍ତ, ନିଃଶେଷ । ଚଣ୍ଡାଶୋକର ସେହି ଶକ୍ତି, ସେହି ଅଧିକାର ପ୍ରବଣତା, ସେହି ପରାକ୍ରମଶୀଳତା ଆଜି ପ୍ରତିଟି ବ୍ୟକ୍ତି ଚେତନା ମଧ୍ୟରେ ପ୍ରତିଫଳିତ । ସେହି ଚେତନାକୁ ନେଇ ଘୂରି ବୁଲୁଥିବା ମଣିଷ ପ୍ରତ୍ୟେକ ସମୟରେ ନିଜ ଅନ୍ତରାତ୍ମା ମଧ୍ୟରେ ବାରମ୍ବାର ଅହଂକାରୀ ଚଣ୍ଡାଶୋକକୁ ଭେଟି ଖେଳିଛି ।

ନାଟକର ଚରମ ମୁହୂର୍ତ, ଶୀର୍ଷବିନ୍ଦୁ ବା Climax; ତିନି ଉଦ୍‌ଭ୍ରାନ୍ତ ଯୁବକଙ୍କ ହାତରେ ସରଳତା ଓ ନିରୀହତାର ମୃତ୍ୟୁ । ଆଧୁନିକତାର ସଉକ, ବଡ଼ଲୋକିର ସତ୍ତକ ମଦ୍ୟପାନ ପରେ ନିଶାଗ୍ରସ୍ତ ହୋଇ ମଣିଷରୁ ପଶୁ ପାଲଟି ଯାଉଥିବା ଆଜିର ମଣିଷ ଅକରଣୀୟ କରେ । ସେ ଭୁଲେ ନିଜକୁ, ହିତାହିତ ଜ୍ଞାନକୁ, ତା'ର ମଣିଷ ପଣିଆକୁ । ବିଶ୍ୱାସର ବାଲିବନ୍ଧ ଭୁଷୁଡ଼ି ଯାଏ, ସଂପର୍କର ମାନେ ବଦଳି ଯାଏ; ଯାହା ଘଟିଛି ନାଟକ 'ମରୁମନ୍ଥନ'ରେ । ସପନିର ଅନୁପସ୍ଥିତି ସହିତ ପାରିପାର୍ଶ୍ୱିକ ପରିସ୍ଥିତି ଯୁବକ ତିନିଙ୍କୁ କରିଛି ଉଶୃଙ୍ଖଳ, ବିଶୃଙ୍ଖଳ । ସେମାନଙ୍କ ପାଇଁ ଶାରିଆ ପାଲଟିଛି ଆକର୍ଷଣର କେନ୍ଦ୍ର । ଭୋଗବାଦୀ ପୁରୁଷର ଲୋଲୁପ, ଭୋକିଲା ଦୃଷ୍ଟିରୁ ନିଃସଙ୍ଗ ମରୁର 'ବାଲିହରିଣ' ମୁକ୍ତି ପାଇପାରୁନାହିଁ । ଯନ୍ତ୍ରଣା ଜର୍ଜରିତ ଅସମ୍ମତି ସହବାସ ଜନିତ ବିରୋଧ, ପ୍ରତିରୋଧ, ପ୍ରତିବାଦ ସତ୍ତ୍ୱେ ଆଧୁନିକ ମଣିଷ ଭିତରେ ଜଳୁଥିବା କାମନାଗ୍ନି ନିରୀହା ଶାରିଆ ଦେହ ଦେଉଳକୁ ଜାଳିପୋଡ଼ି ନିଃଶେଷ କରିଦେଇଛି । ସମୂହ ଧର୍ଷଣ ଓ ହତ୍ୟାପରେ ସମାଧି ନେଇଛି ଶାରିଆ । ଆଶ୍ୱସ୍ତ ହେବାର ଅଭିନୟ କରୁଥିବା ସେମାନେ ସପନିର ଉପସ୍ଥିତିରେ ଆଶଙ୍କିତ ହୋଇଛନ୍ତି । ନିଜ ଭିତର ପାପବୋଧ ସେମାନଙ୍କୁ କରିଛି ବ୍ୟସ୍ତ, ବିବ୍ରତ । ସପନିର ସର୍ବନାଶ କରିଥିବା ଏମାନଙ୍କ ପାଇଁ ସପନି ଜଳାଶୟ (ଶାନ୍ତି)ର ସନ୍ଧାନ ନେଇଆସିଛି । ଏପରି ଏକ ଖୁସି ଖବର ପ୍ରକାଶ କରିବା ସହିତ ସପନି ଜିଜ୍ଞାସା କରିଛି ଶାରିଆର ଉପସ୍ଥିତି । କିନ୍ତୁ କାହିଁ ଶାରିଆ, ଶାରିଆ କାହିଁ ? ଛଳନା ସର୍ବସ୍ୱ ମଣିଷ ମାନଙ୍କର ଛଳନା ସପନି ପାଇଁ ହୋଇଉଠିଛି ଅସହ୍ୟ । ସପନି ସ୍ୱରେ, 'ଶାରିଆର ଯଦି କିଛି ହୋଇଯାଏ- ତା'ହେଲେ ମୁଁ କହିଦଉଛି... କହିଦଉଛି ବାବୁମାନେ, ତମମାନଙ୍କୁ ମୁଁ ଛାଡ଼ିବିନି ।' ସରଳ ମଣିଷ ଥରେ କ୍ରୋଧୀ ହେଲେ ସେ ଭୟଙ୍କର, ପ୍ରଚଣ୍ଡ ରୂପ ଧାରଣ କରେ । ଏ କଥାକୁ ଅନୁଭବ କରି ସମର, ସାଗର, ସଂପଦ ସମ୍ମିଳିତ ଭାବରେ ସପନିକୁ ଗଳା ଚିପି ହତ୍ୟା କରିଛନ୍ତି । ଜଟିଳ, କୁଟିଳ, ଉଦ୍‌ଭ୍ରାନ୍ତ ଆଧୁନିକ ମଣିଷ ଦ୍ୱାରା ସରଳତା, ନିରୀହତାର ମୃତ୍ୟୁ ଘଟିଛି । ଅର୍ଥାତ ନିଜ ଭିତର ସେହି ଦୁଇ ମହାଭାବକୁ ଅନ୍ୟକେହି ନୁହେଁ, ବରଂ ଆମେ ଆମ ନିଜହାତରେ ହତ୍ୟା କରୁଛେ ।

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

ପରିଶେଷରେ ଅନୁଶୋଚନାର ପର୍ବ । ସମ୍ବେଦନଶୀଳ ହୋଇଉଠିଛି ନାଟ୍ୟକାରଙ୍କ ହୃଦୟ । ବାଇବେଲର 'Hate the sin, not the siner' ପଦ୍ଧତିକୁ ସମ୍ମାନର ସହ ଗ୍ରହଣକରି ସହୃଦୟ ନାଟ୍ୟକାର ପାପୀମାନଙ୍କ ଅନୁତାପ ପାଇଁ ଶେଷ ଦୃଶ୍ୟରେ ସୁଯୋଗ ସୃଷ୍ଟି କରିଛନ୍ତି । ଜୀବନମରୁରେ ସମ୍ଭାବନାର ସ୍ୱପ୍ନ ଦେଖୁଥିବା ନାଟକକାର ଶ୍ରୀଯୁକ୍ତ ରାମଚନ୍ଦ୍ର ମିଶ୍ର ପାପୀମାନଙ୍କୁ ଦଣ୍ଡନଦେଇ ଅନୁଶୋଚନରେ କରିଛନ୍ତି ଜର୍ଜରିତ । ନିଜକୁ ଶଠ, ପ୍ରବଞ୍ଚକ, Hypocrate, ଜାନୁଆର, ସୈତାନ ଭାବରେ ସ୍ୱୀକାର କରିଥିବା ମଣିଷ ନିଜ ଭୁଲ୍ ବୁଝିପାରି ପୁଣି ନିଜ ଭିତରର ଶାନ୍ତ, ସରଳ, ନିରୀହ ଚେତନାଟିକୁ ଖୋଜିବା ନିମନ୍ତେ ଚେଷ୍ଟା କରିଛି । ତଥାଗତ ବା ବିବେକର ପୂର୍ଣ୍ଣ ସମର୍ଥନରେ 'ଅମୃତର ସନ୍ତାନ' ମାନବର ଅନ୍ତରାତ୍ମା ନିଜ ଭିତରେ ଥିବା ମଣିଷ ପଣିଆକୁ ଚିହ୍ନିପାରିଛି । ନାଟକ ମଧ୍ୟରେ ବିବେକର ସ୍ୱର ଅନୁରଣିତ, 'ତୁମେ ଯେ ପ୍ରତ୍ୟେକେ ଜଣେଜଣେ ମଣିଷ । କାହିଁ କେଉଁଠି ତ କିଛି ଅସାମଞ୍ଜସ୍ୟ ଦେଖୁନାହିଁ । ତୁମଠି ତ ଖାଲି ମଣିଷର ଚିହ୍ନ । ତମେମାନେ 'ମରୁମନ୍ଥନ' ସମ୍ପୃକ୍ତ ଅମୃତର ସନ୍ତାନ...' । ଏ ଉଚ୍ଚାରଣ ପରେ ରଙ୍ଗମଞ୍ଚରୁ ତଥାଗତ ବା ବିବେକର ପ୍ରସ୍ଥାନ ଘଟିଥିଲେ ହେଁ, ପ୍ରକୃତପକ୍ଷେ ସେ ଅନ୍ତର୍ନିହିତ ସତ୍ତାଟି ପ୍ରତ୍ୟେକଙ୍କ ଭିତରେ ସଦାଜାଗ୍ରତ । ନେପଥ୍ୟରୁ 'ଅନୁ ଶୋଚନାରେ ଦଗ୍ଧ ହେବାଟାହିଁ ଯେ ଚରମ ଶାସ୍ତି' ବିବେକର ଏହି ପରମ ସତ୍ୟବାଣୀ ମଧ୍ୟରେ ନାଟ୍ୟକାରଙ୍କର ପ୍ରଚ୍ଛନ୍ନ ସ୍ୱର ପ୍ରକଟିତ । ଏହାହିଁ ନାଟକର ବାର୍ତ୍ତା । ଡାଇରୀର ଭୁଲ୍ ପୃଷ୍ଠା ସହିତ ଅନ୍ୟାୟ, ଅନୀତି, ଅଧର୍ମ, ଅମାନବୀୟ ଇତିହାସକୁ ଅଗ୍ନି ଗର୍ଭରେ ନିକ୍ଷେପ କରି ନାଟ୍ୟକାର ସମାଜ ପାଇଁ ଏକ ସୁସ୍ଥ, ଶୃଙ୍ଖଳିତ, ମାନବୀୟ ଜୀବନଧାରାର ଚିତ୍ର ଆଙ୍କିଛନ୍ତି । ସେହି ଧାରାରେ ହିଁ ଜୀବନର ଶାନ୍ତି । ଜୀବନମରୁ ହେବ ଜଳପ୍ଳାବିତ । ଆପଣାର ସ୍ୱଚ୍ଛ ପରିଚିତି ମଧ୍ୟରେ ଜୀବନର ତୃପ୍ତି । ନାଟକର ପ୍ରାରମ୍ଭ 'ସଂସାର ଧ୍ବନି ତାପଭାନୁ କିରଣ' ପରି ଏକ ରୁକ୍ଷ, ଶୁଷ୍କ, ଦଗ୍ଧୀଭୂତ ଭ୍ରମାମୂକ ନୈରାଶ୍ୟ ପରିପୂର୍ଣ୍ଣ ସମାଜ ବ୍ୟବସ୍ଥାରୁ ହୋଇଥିବାବେଳେ; ପରିସମାପ୍ତି 'ଶୃଣ୍ବନ୍ତୁ ବିଶ୍ୱେ ଅମୃତସ୍ୟ ପୁତ୍ରାଃ' ପରି ସମ୍ଭାବନାମୟ ଉପନିଷଦୀୟ ଭାବଧାରା ଆଶ୍ରୟରେ କରାଯାଇଛି । ସାମାଜିକ ବିଧୁ-ବ୍ୟବସ୍ଥା ମଧ୍ୟରେ ଘାଣ୍ଟିଚକଟି ହେଉଥିବା ମଣିଷ ମାନଙ୍କ ପାଇଁ ଏକ ଗଭୀର ଆଧ୍ୟାମ୍ଭିକ ପ୍ରଶାନ୍ତି ସୃଷ୍ଟିକରିବା ଉଦ୍ଦେଶ୍ୟରେ ନାଟ୍ୟକାର ଏପରି ଏକ ମଧୁର ଆଶ୍ୱାସନା ପ୍ରଦାନ କରିଛନ୍ତି ।

ଆଧୁନିକ ଓଡ଼ିଆ ନାଟ୍ୟଧାରାରେ ପ୍ରତୀକାମୂକ, ପ୍ରୟୋଗଧର୍ମୀ, ପରୀକ୍ଷାମୂଳକ ତଥା ସ୍ୱଚ୍ଛ ନାଟକ ଭାବରେ 'ମରୁମନ୍ଥନ' ନାଟକ ଏକ ନିର୍ଦ୍ଦିଷ୍ଟ ସମ୍ଭାବନା ସୃଷ୍ଟି କରିପାରିଛି । ଯୁଗୀୟ ଆବେଦନ ଦ୍ୱାରା ପ୍ରୋତ୍ସାହିତ ନାଟ୍ୟକାରଙ୍କ 'ମରୁମନ୍ଥନ'ରେ ପ୍ରତୀକ ପ୍ରୟୋଗ ଅନନ୍ୟ ସାଧାରଣ । ଅନ୍ୟକିଛି ନକହି କେବଳ ଏ ନାଟକକୁ ପ୍ରତୀକଧର୍ମୀ ନାଟକ କହିଲେ ସତ୍ୟର ଅପଳାପ ହେବନାହିଁ । ପ୍ରତୀକର ବିଭିନ୍ନ ରୂପ ନାଟକଟିରେ ରୂପାୟିତ ଦୃଶ୍ୟ (ମରୁଭୂମି), ବସ୍ତ୍ର (ସୁନା, ତୁମ୍ବା, ବାଲି), ଜୀବ (ଓଟ, ବାଲିହରିଣ), ଚରିତ୍ର (ତଥାଗତ, ଶାରିଆ, ସପନି, ମାମୁଦ, ବିଷ୍ଣୁଦାସ, ଅଶୋକ), ଶବ୍ଦ (ତୃଷା, ମରୀଚିକା, କୂଜ, ଶବ, ୫ଡ଼-ଝନ୍ଝା, ଖରା-କାକର)କୁ ପ୍ରତୀକ ବା ଚିହ୍ନ ଅଥବା ସଂକେତ ରୂପେ ପ୍ରୟୋଗକରି ନାଟ୍ୟକାର ସ୍ୱ-ବିଶ୍ଳେଷଣାମୂକ ଦୃଷ୍ଟିଭଙ୍ଗୀକୁ ପ୍ରତିଷ୍ଠା କରାଇପାରିଛନ୍ତି । ନାଟକଟି ସାଙ୍କେତିକ ହୋଇଥିବାରୁ ଏହାର ଗତିବେଗ ଯେତିକି ତୀବ୍ର, ଭାବାବେଗ ସେତିକି ହୃଦ୍ୟ । 'ମରୁମନ୍ଥନ' ଏକ ପ୍ରତିନିଧି ଶ୍ରେଣୀୟ ନାଟକ ହୋଇଥିଲେ ହେଁ ତାହା ଅଦ୍ୟାବଧି ଅନାଲୋଚିତ । ତେବେ ନାଟକଟି ପାଇଁ ଉଲ୍ଲିଖିତ ଆଲୋଚନା ଶେଷନୁହେଁ, ବରଂ ଶେଷର ଆରମ୍ଭ ମାତ୍ର । ଭବିଷ୍ୟତରେ ନାଟକ

'ମରୁମନ୍ଥନ' ଅନେକ ଆଲୋଚନାର ଅପେକ୍ଷା ରଖେ ।

ସହାୟତା

୧.   ମରୁମନ୍ଥନ   (ନାଟକ)   ନାଟ୍ୟକାର ରାମଚନ୍ଦ୍ର ମିଶ୍ର
୨.   ଶବବାହକମାନେ   (ନାଟକ)   ନାଟ୍ୟକାର ବିଜୟ ମିଶ୍ର
୩.   ଜଣେ ରାଜା ଥିଲେ   (ନାଟକ)   ନାଟ୍ୟକାର ବିଜୟ ମିଶ୍ର
୪.   ନିଷିଦ୍ଧ ଅନ୍ଧାର   (ନାଟକ)   ନାଟ୍ୟକାର ଦାଶରଥି ପ୍ରସାଦ ଦାଶ
୫.   ଶବ ପଡ଼ିଛି   (ନାଟକ)   ନାଟ୍ୟକାର ପ୍ରଫୁଲ୍ଲ କୁମାର ରଥ
୬.   ପାଗଲା ଘୋଡ଼ା   (ନାଟକ)   ନାଟ୍ୟକାର ବାଦଲ ସରକାର
୭.   ଉଭଟ ନାଟ୍ୟ ପରଂପରା   (ନାଟକ)   ନାଟ୍ୟକାର ଡ. ରତ୍ନାକର ଚଇନି
୮.   ନୂତନ ମୂଲ୍ୟବୋଧର   (ନାଟକ)   ନାଟ୍ୟକାର ବିଜୟ କୁମାର ଶତପଥୀ
୯.   ଓଡ଼ିଆ ନାଟକର ବିକାଶଧାରା (୪ର୍ଥ ଖଣ୍ଡ)   ଡ. ହେମନ୍ତ କୁମାର ଦାସ
୧୦.   ସୀମା ଓ ସମ୍ଭାବନା   (ନାଟକ)   ନାଟ୍ୟକାର ଡ. ସଂଘମିତ୍ରା ମିଶ୍ର
୧୧.   ବିଜୟ ମିଶ୍ରଙ୍କ ନାଟକରେ ପରୀକ୍ଷା ଓ ପ୍ରୟୋଗ   ଡ. ବିଜୟ କୁମାର ଚୌଧୁରୀ
୧୨.   ଆଧୁନିକ ଓଡ଼ିଆ ନାଟକରେ ବାସ୍ତବ ଓ ଉଭଟ ଚେତନା   ଡ. ନୀଳାଦ୍ରି ଭୂଷଣ ହରିଚନ୍ଦନ
୧୩.   The Theatre of Absurd- Martin Esslin
୧୪.   Aspects of oriya Drama- Dr. Niladri Bhusana Harichandan
୧୫.   Porspective of odisha theatre- Dr.Ramesh Prasad Panigrahi

❖ ❖ ❖

ମୋ ସାହିତ୍ୟର ଭବିଷ୍ୟତ

ଡକ୍ଟର ବିଦ୍ୟୁତ୍ପ୍ରଭା ମିଶ୍ର

ଅଧ୍ୟାପିକା, ଓଡ଼ିଆ ଭାଷା ସାହିତ୍ୟ ବିଭାଗ

ନୟାଗଡ଼ ପ୍ରଜାମଣ୍ଡଳ ମହିଳା ମହାବିଦ୍ୟାଳୟ, ନୟାଗଡ଼

ଜୀବନର ହସ, କାନ୍ଦ, ଲୁହ ଲହୁ ଆବେଗ, ଉକ୍ରଣ୍ଠା, ମିଳନ ବିଚ୍ଛେଦ ଇତ୍ୟାଦି ଅନୁଭବ ଗୁଡ଼ିକର ମାନବୀୟ ପ୍ରବୃତିର କାଳାତ୍ମକ ଅଭିବ୍ୟକ୍ତି । ଯାହା ଅନ୍ୟପାଇଁ କୁସ୍ଥିତ ସାହିତ୍ୟ ତା'ର ଭିତରେ ସୌନ୍ଦର୍ଯ୍ୟର ପରିକଳ୍ପନା କରେ । ଯାହା ଅନ୍ୟ ପାଇଁ ଅଳୀକ ସାହିତ୍ୟ ତା ଭିତରେ ପାରାବାରକୁ ଅନ୍ବେଷଣ କରେ । ଯାହା ଅନ୍ୟପାଇଁ ଶୁଷ୍କ ସାହିତ୍ୟ ତା'ଭିତରେ ରସର ଝରଣା ସୃଷ୍ଟି କରେ । ଯାହା ସାଧାରଣ ପାଇଁ ନର୍କ ସାହିତ୍ୟ ତା ଭିତରେ ଅମରାବତୀର ସ୍ୱପ୍ନ ଜାଗରଣ କରେ । ଯାହା ଅନ୍ୟ ପାଇଁ ସାଧାରଣ ସାହିତ୍ୟ ତା ଭିତରେ ଅସାଧାରଣ ପ୍ରତିଭାକୁ ପ୍ରତିଭାତ କରେ । ଯାହା ଅନ୍ୟ ପାଇଁ ଯନ୍ତ୍ରଣା ବୋଧ କରାଏ ସାହିତ୍ୟ ତା' ପାଇଁ ବୈକୁଣ୍ଠର ବାଟ ଦେଖାଏ । ତେଣୁ ସାହିତ୍ୟ ଚିରନ୍ତନ, ଶାଶ୍ୱତ, ନିତ୍ୟ ନବୀନ । ମଣିଷର ପ୍ରାଣ ହେଉଛି ସାହିତ୍ୟ; କାରଣ ମଣିଷର ପ୍ରତ୍ୟେକ କାର୍ଯ୍ୟ ଅନୁଭବ ଓ ଅନୁଭୂତି ସାହିତ୍ୟ ମାଧ୍ୟମରେ ରୂପ ନିଏ ଏବଂ ଆତ୍ମା ହୋଇ ବିରାଜମାନ କରେ ସାହିତ୍ୟ ପୃଷ୍ଠା ଭିତରେ । ସମାଜରେ ଘଟୁଥିବା ପ୍ରତ୍ୟେକ ଅନୁଭୂତି, କାର୍ଯ୍ୟକଳାପ, ଚରିତ୍ର, ସଂସ୍କାରକୁ, ରୀତି-ନୀତି, ଚାଲିଚଳଣୀ ଅବମଣ୍ଡିତ କରଛି ସାହିତ୍ୟର କାଳେବରକୁ । ତେଣୁ ସମାଜ ଓ ମଣିଷ ସହିତ ସାହିତ୍ୟର ସମ୍ପର୍କ ଅତି ନିବିଡ଼ । ସାହିତ୍ୟ ରୂପନିଏ ସମାଜ ମାଧ୍ୟମରେ ଓ ସମାଜ ସଜାଡ଼ି ହୁଏ ସାହିତ୍ୟ ମାଧ୍ୟମରେ । ତେଣୁ ସମାଜ ଓ ସାହିତ୍ୟ ଗୋଟିଏ ଝରଣାର ଦୁଇଟି ଝର, ଗୋଟିଏ ବୀଣାର ଦୁଇଟି ସ୍ୱର, ଗୋଟିଏ ରାଗିଣୀର ଦୁଇଟି ସୁର ଓ ଗୋଟିଏ ବୃନ୍ତରେ ଦୁଇଟି ଫୁଲ । ସାହିତ୍ୟ ଦର୍ପଣ ହେଲେ ସମାଜ ତା' ଭିତରେ ପ୍ରତିଭାତ ହୁଏ । ସମାଜ ନାରୀଟିଏ ହେଲେ ସାହିତ୍ୟ ଅଳଙ୍କାର ହୋଇ ତା'କୁ ମଣ୍ଡିତ କରେ । ସମାଜ ପ୍ରାନ୍ତର ହେଲେ ସାହିତ୍ୟ ଚିରସ୍ରୋତସ୍ୱିନୀ ହୋଇ ନିର୍ମଳ କରେ ତା'ର ବକ୍ଷସ୍ଥଳକୁ । ସମାଜ ଚିରସ୍ରୋତା ନଦୀ ହେଲେ ସାହିତ୍ୟ ପବିତ୍ର କରେ ତା'ର ସ୍ୱଚ୍ଛ ଜଳରାଶିକୁ ତେଣୁ ସାହିତ୍ୟ ବିନା ଜୀବନ ଓ ଜୀବନ ବିନା ସାହିତ୍ୟର ପରି କଳ୍ପନା ମଧ୍ୟ ଦୁଃସାଧ୍ୟ । ସାହିତ୍ୟ ସବୁବେଳେ ସମାଜରୁ କୁସଂସ୍କାର ଦୂର କରିବାକୁ ଚେଷ୍ଟାକରି ସଂସ୍କୃତ କରେ । ସାହିତ୍ୟର ଇତିହାସକୁ ଅବଲୋକନ କରେ ସାରଳାଙ୍କ ସାହିତ୍ୟ, ପଞ୍ଚସଖ୍ୟା ସାହିତ୍ୟ, ରୀତି ସାହିତ୍ୟ, ସତ୍ୟବାଦୀ ସାହିତ୍ୟ, ସବୁଜ ସାହିତ୍ୟ, ଆଧୁନିକ ସାହିତ୍ୟ ଇତ୍ୟାଦି ଦୃଶ୍ୟମାନ ହୁଏ । ଏସବୁ ସାହିତ୍ୟ ପର୍ଯ୍ୟବେକ୍ଷଣ କଲେ ସାରଳାଙ୍କ ସାହିତ୍ୟ ଜଣେ ସନ୍ୟାସୀର ବସ୍ତ୍ରରେ ପରିହିତ ହୋଇ ଧର୍ମ ଦର୍ଶନ, ନୀତିଶାସ ଓ ପୁରାଣ କଥାକୁ ଅଭିମଣ୍ଡିତ କରିଥିଲା । ତତ୍କାଳୀନ ସମାଜରେ ଧର୍ମ ନାମରେ ରହିଥିବା ପଞ୍ଚମକାର ଉପାସନା ଓ ଯୌନ ଯୌଗିକ ସାଧନା ଠାରୁ ଜନସାଧାରଣଙ୍କୁ ଦୂରେଇ ନେବାପାଇଁ ସେ ମହାଭାରତ ପରି ପୁରାଣ ରଚନା କରିଥିଲେ । ତାଙ୍କ ଧର୍ମମୂଳକ ରଚନା ସୁସ୍ଥ ସମାଜ ଗଠନ ପାଇଁ ଥିଲା ଅଭିପ୍ରେତ । ପରବର୍ତ୍ତୀ କାଳରେ ପଞ୍ଚସଖାମାନଙ୍କ ଆତ୍ମ ପ୍ରକାଶ ହୋଇଥିଲା । ସମାଜରେ ବ୍ରାହ୍ମଣମାନେ

ଯେତେବେଳେ ବ୍ରହ୍ମବିଦ୍ୟାକୁ ଗୋପନରେ ତାଙ୍କ ହାତମୁଠାରେ ରଖିବାକୁ ଚେଷ୍ଟା କରିଥିଲେ, ସେହି ସମୟରେ ବଳରାମ ଦାସ ଦୃଢ଼ୋକ୍ତି ସହକାରରେ ବ୍ରହ୍ମବିଦ୍ୟାକୁ ବାଉରି ମୁଖରେ ମଧ୍ୟ କୁହାଇ ପାରିଥିଲେ ।

"ସେ ଯେବେ ବ୍ରହ୍ମ ବିଦ୍ୟାକୁ ଛଡ଼ି ଗୋପ୍ୟ କରି
କାଳି ଦେବାର୍ଚ୍ଚନ ବେଳେ କହିବ ବାଉରୀ ।"

ବାସ୍ତବିକ ଏହି ପ୍ରକାର ଦୃଢ଼ୋକ୍ତି ଜଣେ କବିର ରହିବା ନିତ୍ୟାନ୍ତ ଆବଶ୍ୟକ କାରଣ କବି ହିଁ ସାହିତ୍ୟ ମାଧ୍ୟମରେ ଆଲୋଚନା ସମାଲୋଚନା କରିବାରେ ଏକ ନୂତନ ସୃଷ୍ଟି ତିଆରି କରିପାରେ ସେଥିପାଇଁ ତା'କୁ ଦ୍ୱିତୀୟ ବ୍ରହ୍ମ ବୋଲି କୁହାଯାଏ । ସେହି ସମୟରେ କବି ଜଗନ୍ନାଥ ଦାସ ଯାହାର 'ଭାଗବତ' ଓଡ଼ିଶାର ସାଂସ୍କୃତିକ, ସାମାଜିକ, ଆଧ୍ୟାତ୍ମିକ ଜୀବନର ଏକ ପ୍ରତିଲିପି । ଭାଗବତ ଓଡ଼ିଆ ସରୋବରରେ ସଦା ଜୀବନ୍ତ ଏକ ଶତଦଳ କହିଲେ ଅତ୍ୟୁକ୍ତି ହେବନାହିଁ । ସମାଜରେ ବଞ୍ଚିବା ପାଇଁ ଭାଗବତ ଏକ ସହାୟକ ଗ୍ରନ୍ଥ । ଓଡ଼ିଆ ଜନନଜୀବନକୁ ଶୃଙ୍ଖଳିତ କରିବା ପାଇଁ ଏହା ଏକ ବିରାଟ ପ୍ରୟାସ । ଯେଉଁଥିପାଇଁ ଓଡ଼ିଶାର ଘରେଘରେ ଭାଗବତ ଟୁଙ୍ଗିରେ ଆଜି ମଧ୍ୟ ଭାଗବତ ପୂଜା ପାଉଛନ୍ତି ଖଟୁଲୀ ଉପରେ । ରୀତି ସାହିତ୍ୟ ଥିଲା ସଂଭ୍ରାନ୍ତ ସାହିତ୍ୟ ଯେଉଁଥିରେ ଅଳଙ୍କାର ଶୋଭାମଣ୍ଡିତ କରୁଥିଲା । କଳ୍ପନା ପ୍ରବଣ ଥିଲେ ଏ ଯୁଗର କବିମାନେ । କଳ୍ପନାରେ ନାୟକ ନାୟିକାକର ପ୍ରେମ, ମିଳନ ଓ ବିଚ୍ଛେଦକୁ ନେଇ ଏ ଯୁଗର କବି ସାହିତ୍ୟ ରଚନା କଲେ ମଧ୍ୟ ଧର୍ମକୁ ଛାଡ଼ି ପାରିନଥିଲା । ଶ୍ରୀରାମ, ଶ୍ରୀକୃଷ୍ଣ, ଶ୍ରୀଜଗନ୍ନାଥଙ୍କୁ ନେଇ ବିଭିନ୍ନ ପ୍ରକାର କାବ୍ୟ କବିତା, ଛାନ୍ଦ, ଚଉତିଶା, ଭଜନ ଜଣାଣ ଆଦି ରଚନା କରି ଧର୍ମୀୟ ଭାବନାକୁ ପ୍ରସାରିତ କରିପାରି ଥିଲା । କବିଙ୍କ ଭାଷାରେ,

'ଅପ୍ରାକୃତ ପ୍ରେମମୂର୍ତ୍ତି ଜୟ ରାଧାହରି
ଅବ୍ୟକ୍ତ ଲୀଳାକୁ ବ୍ୟକ୍ତ କରତୁ ଶ୍ରୀହରି ॥'

ସତ୍ୟବାଦୀ ସାହିତ୍ୟ ଥିଲା ମୁଖ୍ୟତଃ ଦେଶପ୍ରୀତି ସ୍ୱଦେଶ ପ୍ରେମ ଉପରେ ଆଧାରିତ । ଏ ଯୁଗର କବି ମୁଖ୍ୟତଃ ପରାଧୀନ ଭାରତ ଦେଶ ମାତୃକାର ଶୃଙ୍ଖଳତାକୁ ଛିନ୍ନ କରିବାକୁ ପ୍ରୟାସ କରିଥିଲା ତା'ର ଲେଖନୀ ମାଧ୍ୟମରେ । ସେଥିପାଇଁ ନିଜ ଜୀବନ ବିସର୍ଜନ କରିବାକୁ ମଧ୍ୟ ସେ ପଶ୍ଚାତ୍ପଦ ହୋଇ ନଥିଲା । ଶୟନେ ସ୍ୱପନେ ଜାଗରଣେ ସେ ଦେଶ ମା' ପାଇଁ ହିଁ ଚିନ୍ତା କରୁଥିଲା, ଯେଉଁଥିପାଇଁ କବି ଲେଖିଛନ୍ତି-

"ସତ୍ୟ ସ୍ୱାଧୀନତା ପାଇଁ ଯାର କାରାବାସ
ତା ଲାଗି ଏ ପୁଣ୍ୟବେଳ କରେ ମୁଁ ବିଶ୍ୱାସ ।"

ସେହିପରି ସବୁଜ ସାହିତ୍ୟ ବିଶ୍ୱଯୁଦ୍ଧର ଭୟାବହତା ପରେ ମଣିଷକୁ ସ୍ୱପ୍ନ ପ୍ରବଣ କରାଇବାରେ ଏ ଯୁଗର ସାହିତ୍ୟ ଉନ୍ମୁଖ ଥିଲା । ଯୁଦ୍ଧର ଭୟାବହତାକୁ ନେଇ ମଣିଷ ଯେତେବେଳେ ଦୁଃଖ ଗ୍ଲାନିରେ କାଳାତିପାତ କରୁଥିଲା ସେତେବେଳେ ଏ ଯୁଗର କବିମାନେ ଏହି ମାନବକୁ ଅମରାବତୀରେ ନିତ୍ୟ ମଧୁବନକୁ ନେବାର ପ୍ରୟାସ କରିଥିଲେ ।

"ଚାଲରେ ଚାଲ ମନ ନିତ୍ୟ ମଧୁବନ
ଦେଖିବୁ ପ୍ରିୟରାସ ଅଦୂର ଗୋଲକରେ ।"

ପ୍ରକୃତର ସାହିତ୍ୟ ହିଁ ମନରୁ ଦୁଃଖ ଦୂରକରେ । ସମସ୍ତଙ୍କୁ ସ୍ୱପ୍ନରେ ବିଭୋର କରାଏ । ସମସ୍ତଙ୍କ ପାଇଁ

ସୁଖର ସ୍ୱପ୍ନ ଦେଖାଏ । ଦୁଃଖ ଭିତରୁ ସୁଖକୁ ବାଟ ଦେଖାଏ । ବିଚ୍ଛେଦ ଭିତରୁ ମିଳନର ସ୍ୱର୍ଗପାଏ । ମୃତ୍ୟୁ ଭିତରୁ ଜନ୍ମର ମାର୍ଗ ଦେଖାଏ । ସମସ୍ତଙ୍କ ପାଇଁ ଏକ ପ୍ରକାର ସ୍ୱପ୍ନ ଦେଖେ କବିଙ୍କ ଭାଷାରେ-

> "କବିତା ଗଢ଼େ ଏକ ବିରାଟ ସମାଜର
> ସବୁରି ପାଇଁ ଯହିଁ ବକ୍ଷରେ ହେଲେ ଘର
> ସଭିଏଁ ଲଭିବାକୁ ମୁଠାର ଦୁଧ ଭାତ,
> ଯୋଗ୍ୟ ଯେତେ ଯହିଁ ବାଳକ ବାଳିକାତ ।"

ବାସ୍ତବିକ ସାହିତ୍ୟ କେତେ ବହୁନ୍ମୁଖୀ । ସଭିଏଁ ମୁଠାଏ ଦୁଧଭାତ ଲାଭ କରିବା ପାଇଁ କବି ସ୍ୱପ୍ନ ଦେଖେ ଓ କବିତା ଲେଖେ । ତ୍ରିବେଣୀ ସଙ୍ଗମ ଭାବେ ସାହିତ୍ୟର ଆଧୁନିକତାର ବାର୍ତ୍ତାନେଇ ଆତ୍ମପ୍ରକାଶ କରଛି ଫକୀର ମୋହନ, ରାଧାନାଥ ଓ ଗଙ୍ଗାଧର ମେହେର, ଯେଉଁମାନେ ସାହିତ୍ୟକୁ ଆଧୁନିକତାର ରୂପ ଦେଲେ ସେମାନଙ୍କ ଲେଖନୀ ମାଧ୍ୟମରେ । ସାହିତ୍ୟ ନୂତନ କଳେବରରେ ଆତ୍ମପ୍ରକାଶ କଲା । ପ୍ରାଚ୍ୟ ଓ ପାଶ୍ଚାତ୍ୟର ସମନ୍ୱୟ ଘଟିଲା । ଅଣୁ ଭିତରେ ପରମାଣୁ । ବିନ୍ଦୁ ମଧ୍ୟରେ ସିନ୍ଧୁର ପରିକଳ୍ପନା କରାଗଲା । ପ୍ରକୃତି ଦେଖି ବିମୋହିତ ହେଲା କବି । ପ୍ରକୃତିର ସୁନ୍ଦରତା ସହିତ ଆଧ୍ୟାୟତା କଲା । କବିଙ୍କ ଭାଷାରେ –

> "ସୁନ୍ଦର ତୃପ୍ତିରି ଅବସାଦ ନାହିଁ
> ଯେତେ ଦେଖୁଥିଲେ ନୂଆ ଦିଶୁଥାଇ ।"

ବାସ୍ତବିକ ଏହିପରି ଗଭୀର ଭାବେ ଓଡ଼ିଆ ସାହିତ୍ୟର ଇତିହାସକୁ ପର୍ଯ୍ୟବେକ୍ଷଣ କଲେ ସାହିତ୍ୟ ଯେ ଚିର ଜୀବନ୍ତ । ହୃଦୟର ସ୍ୱର୍ଶୀ ଓ ପାଠକମାନଙ୍କୁ ଚିତ୍କୁ ଅଭିମନ୍ତ୍ରିତ କରେ । ସାହିତ୍ୟ ସୁନ୍ଦର ହୁଏ ପାଠକର ପଠନରେ । ଆଦୃତ ଲାଭକରେ ପାଠକର ଚିତରେ ଓ ପୁରସ୍କୃତ ହୁଏ ପାଠକର ମନରେ ।

କିନ୍ତୁ ହାୟ । ଆଜି ସାହିତ୍ୟ ଉପରୁ ପାଠକର ଆଦୃତି କମିଗଲାଣି । ଜ୍ଞାନ, ବିଜ୍ଞାନ, ବୈଷୟିକ ଜ୍ଞାନର ଅଙ୍କ କକ୍ଷା ଭିତରେ ପାଠକ ହଜେଇ ବସିଲାଣି ସାହିତ୍ୟ ପଠନକୁ । ସାହିତ୍ୟ ଲେଖା ଭିତରେ ଯେମିତି ପ୍ରତିଯୋଗିତା ଚାଲିଛି ସେମିତି ପ୍ରତିଯୋଗିତା ନାହିଁ ସାହିତ୍ୟ ପଠନରେ । ଆଜିର ଯୁବପିଢ଼ି ଇଣ୍ଟରନେଟ୍ ପାଖରେ ଗୋଟେଷଣରେ ବସି ଜ୍ଞାନଲାଭ କରିପାରୁଛି । ଅତି ସହଜରେ ତେଣୁ ପୃଷ୍ଠାପରେ ପୃଷ୍ଠାକୁ ଲେଉଟାଇ ପଢ଼ିବା ତା ପକ୍ଷେ କଷ୍ଟସାଧ୍ୟ ଓ ସମୟସାପେକ୍ଷ ମଧ୍ୟ ହେଉଛି । ପଢ଼ିବାରେ ଆଉ ତା ପାଇଁ ସ୍ପୃହା ନାହିଁ । ପଠନ ହିଁ ମଣିଷକୁ ଭାବମୟ କରାଏ ଯାହାଫଳରେ ସେ ବି ଦିନେ ଏହି ଭାବନା ରାଜ୍ୟରୁ ଜଣେ ସାହିତ୍ୟକର ପରିଚୟ ଲାଭ କରେ କିନ୍ତୁ ଆଜି ଶହ ଶହ ସାହିତ୍ୟ ଲେଖାଯାଉଛି ସତ କିନ୍ତୁ ପାଠକମାନଙ୍କର ଘୋର ଅଭାବ ଏହାକୁ ପାଠ କରିବା ପାଇଁ । ବୈଷୟିକ, ଜ୍ଞାନ, ବିଜ୍ଞାନ, ଭିତରେ ଛାତ୍ରଛାତ୍ରୀ ଭୁଲି ଯାଉଛନ୍ତି ନିଜର ମାତୃଭୂମି ଓ ମାତୃଭାଷାକୁ । ମାତୃଭାଷା ପ୍ରତି ନାହିଁ ସ୍ପୃହା ଓ ମମତା । କବି ଦିନେ ଲେଖିଥିଲେ,

> "ମାତୃଭୂମି ମାତୃଭାଷାରେ ମମତା
> ଯା ହୃଦେ ଜନମି ନାହିଁ
> ତାକୁଯଦି ଜ୍ଞାନୀ ଗଣରେ ଗଣିବା
> ଅଜ୍ଞାନ ରହିବେ କାହିଁ ?"

ପ୍ରକୃତରେ ଜ୍ଞାନୀ ହେଉଛି ସିଏ ଯେ କି ମାତୃଭୂମି ଓ ମାତୃଭାଷାରେ ନିଜର ରୁଚି ରଖିଥାଏ । ଏତ ଗଲା ପାଠକଙ୍କ କଥା, ଲେଖକମାନଙ୍କ କଥା ନ କହିଲେ ଚଳେ । "କହିଲେ କୁଳ କୁଟୁମ୍ବକୁ ଲାଭ ନ କହିଲେ କୁଳ

ଭାସିଯାଉଛି ।" ଲେଖକମାନଙ୍କ ଭିତରେ ଆଜି ସାହିତ୍ୟ ପାଇଁ ନୁହେଁ ପୁରସ୍କାର ପାଇଁ ପ୍ରତିଯୋଗିତା, ପୁରସ୍କାର ପଛରେ ଧାଉଁଛି ସାହିତ୍ୟ । କେଉଁ କବି କେତେ ପୁରସ୍କାର ପାଇ କେତେ ଚର୍ଚ୍ଚିତ ହେଲେ । ଏହାହିଁ ଆଜିର ସାହିତ୍ୟିକଙ୍କ ଭିତରେ ପ୍ରତିଯୋଗିତା ସାହିତ୍ୟର ଉନ୍ନତି ପାଇଁ ବିଭିନ୍ନ ପ୍ରକାର ଯଥା ସାହିତ୍ୟ ଏକାଡେମୀ, କେନ୍ଦ୍ର ସାହିତ୍ୟ ଏକାଡେମୀ, ସାରଳା ପୁରସ୍କାର, ମୂର୍ତ୍ତିଦେବୀ ପୁରସ୍କାର ଠାରୁ ଆରମ୍ଭ କରି ଛୋଟମୋଟ ବିଭିନ୍ନ ପୁରସ୍କାର ପଛରେ ଆଜି ଆମ ସାହିତ୍ୟ । ପଛକୁ ଚାହିଁଲେ ପ୍ରତୀୟମାନ ହେବ ଯେତେବେଳେ ଫକୀରମୋହନ "ଛ'ମାଣ ଆଠଗୁଣ୍ଠ" ଲେଖିଥିଲେ ତାହା ତତ୍କାଳୀନ ସମାଜରେ ଏକ ଚହଲ ସୃଷ୍ଟି କରିଥିଲା । ଆଜି ବି ଏମିତି ଜଣେ ଓଡ଼ିଆ ନାହିଁ ଯେ କି ଫକୀରମୋହନଙ୍କର ଏହି ଉପନ୍ୟାସଟିକୁ ଜାଣି ନାହିଁ ବା ପାଠକରି ନାହିଁ । କେଉଁ ପୁରସ୍କାର ପାଇଥିଲା ତା'କର ଏହି ପୁସ୍ତକଟି ? କିନ୍ତୁ ସେଥିପାଇଁ କ'ଣ ତାଙ୍କର ମନସ୍ତାପଥିଲା । ନା ସାହିତ୍ୟ ଲେଖିବାର ଊଣା ଥିଲା ବରଂ ଉଦାମ ଭାବରେ ତାଙ୍କ ଲେଖନୀ ଗୋଟିଏ ପରେ ଗୋଟିଏ ସାହିତ୍ୟ ରଚନା କରୁଥିଲା କିନ୍ତୁ ଆଜି ଗୋଟିଏ ପୁସ୍ତକ ଲେଖିଥିବା ସାହିତ୍ୟିକ ମଧ୍ୟ ପଛଘୁଞ୍ଚା ଦେଉନି କଳେ ବଳେ କୌଶଳେ ପୁରସ୍କାରଟାକୁ ହାତମୁଠାକୁ ଆଣିବାକୁ । ସୁନାମଧନ୍ୟ ଲେଖକ ପାଇଥିବା ସାହିତ୍ୟ ଏକାଡେମୀ ବା କେନ୍ଦ୍ରସାହିତ୍ୟ ଏକାଡେମୀ ପୁରସ୍କୃତ ପୁସ୍ତକଟିକୁ କେତେଜଣ ପାଠ କରିଛନ୍ତି ? ଯେତେଜଣ ଫକୀରମୋହନଙ୍କ "ଛ'ମାଣ ଆଠ ଗୁଣ୍ଠ" ପୁରସ୍କାର ବିହିନ ପୁସ୍ତକକୁ ପାଠ କରିଛନ୍ତି । ଆଜି ମଧ୍ୟ ଓଡ଼ିଆଙ୍କ ପ୍ରାଣରେ ଶାରିଆ ଓ ଭଗିଆଙ୍କର ସେହି କରୁଣ କାହାଣୀ ଆତ୍ମଲିପି ହୋଇ ରହିଛି । ସାହିତ୍ୟ ଯୁଗଜୟୀ ହୁଏ ପାଠକ ମାଧ୍ୟମରେ ପୁରସ୍କାର ମାଧ୍ୟମରେ ନୁହେଁ । ଆଜି ମଧ୍ୟ ଦାସିଆ ଅଜାପରି କେତେକେତେ ସାହିତ୍ୟ ପ୍ରେମୀ ବଣରେ ବଣର ଫୁଲପରି ମଉଳି ଯାଉଛନ୍ତି ସତ କିନ୍ତୁ ବନ୍ଦ ହୋଇନି ସେମାନଙ୍କର ସାହିତ୍ୟ ରୁଚି ବା ପ୍ରେମ । ଗାଁ ଗହଳରେ ଆଜିବି କେତେ ବୃଦ୍ଧ ଓ ବୃଦ୍ଧା ନିଜେ କବିତା ଲେଖୁଛନ୍ତି ଅବିରାମ ଗତିରେ ତାଙ୍କ ସାହିତ୍ୟ ଲୋକଲୋଚନକୁ ଆସୁବା ନ ଆସୁ । ପାଠକୀୟ ଆଦୃତି ପାଉ ବା ନ ପାଉ । କିନ୍ତୁ ସେମାନଙ୍କର ଗୋଟିଏ ଲକ୍ଷ୍ୟ ଥାଏ ସାହିତ୍ୟ ସର୍ଜନା । କବି ତା'ର କବିତୃକୁ ନେଇ ସେ ସଭା ସମିତିରେ ମାନପତ୍ର ପ୍ରାପ୍ତ ହେଉଛି ଛାତି ଫୁଲେଇ ତା'ର କବିତା ବା ସାହିତ୍ୟ ଉପରେ ଅନ୍ୟପାଖରେ ତର୍ଜମା କରୁଛି । କାରଣ ସାହିତ୍ୟର ବିଶାଳ ବକ୍ଷରେ ତା ସାହିତ୍ୟଟି କେଉଁଠି ଲୁଚିଯିବ କାଳେ ତା'କୁ ସେହି ଭୟ । ସେଥିପାଇଁ ଲୋକଲୋଚନକୁ ଆସିବାକୁ ସେ ନିଜେ ପ୍ରୟାସ କରୁଛି । ଲୁଚି ଲୁଚି ଯେନ ତେନ ପ୍ରକାରେଣ ଅନ୍ୟ ଭାଷା, ପ୍ରାନ୍ତୀୟ ସାହିତ୍ୟରୁ କିଛି ଧାଡ଼ି ଆହରଣ କରି ତା'କୁ ମଧ୍ୟ ସାହିତ୍ୟରେ ରୂପ ଦେବାକୁ ପଛଘୁଞ୍ଚା ଦେଉନି ଓ ପରିଶେଷରେ ପ୍ରକୃତ ସାହିତ୍ୟ ଲେଖିଥିବା ଲୋକକୁ ପଛରେ ପକାଇ ବଡ଼ ବଡ଼ ପୁରସ୍କାର ପ୍ରାପ୍ତ ହୋଇ ଆତ୍ମସନ୍ତୋଷ ଲାଭକରୁଛି ।

ପରିଶେଷରେ ସାହିତ୍ୟ ଆଜି ଯେଉଁ ସୁପ୍ତ ଅବସ୍ଥାରେ ପହଞ୍ଚିଲାଣି ତା'କୁ ଉଠାଇବାକୁ ଆମ୍ଭମାନଙ୍କର ହିଁ ଗୁରୁ ଦାୟିତ୍ୱ ରହିଛି । ଏବେ ତ ଲେଖକଙ୍କର ଅଭାବ ନାହିଁ ଅଭାବ ଅଛି ପାଠକଙ୍କର ଆଉ କେତେ ବର୍ଷପରେ ଉଭୟ ଲେଖକ ଓ ପାଠକ ଅଭାବ ପଡ଼ିବେ କାରଣ ଏବେ ଯେଉଁ ଯୁବପିଢ଼ୀର ସାହିତ୍ୟ (ମାତୃଭାଷା) ପ୍ରତି ମମତା ନାହିଁ ଆଗାମୀ କାଳରେ ଆଉ ସାହିତ୍ୟ ରୂପ ନେବ କିପରି ? ଇଂରାଜୀ ମାଧ୍ୟମରେ ପଢ଼ିବାର ଯେଉଁ ଆୟାସଳ ପିଲାମାନଙ୍କ ଭିତରେ, ତା' ଭିତରେ ଓଡ଼ିଆ ସାହିତ୍ୟକୁ ବଞ୍ଚେଇବ କିଏ ? ତେବେ ଆଉ କେତୋଟି ପିଢ଼ି ପରେ କ'ଣ ଓଡ଼ିଆ ସାହିତ୍ୟ ସଂପୂର୍ଣ୍ଣ ମୃତ ହୋଇଯିବ ? ପୂର୍ଣ୍ଣଛେଦ ପଡ଼ିବ ସେଇ ବିଶାଳ ସାହିତ୍ୟର ଇତିହାସରେ ? ପ୍ରଶ୍ନବାଚୀ ମୋ ମନରେ କ'ଣ ହେବ ମୋ ସାହିତ୍ୟର ଭବିଷ୍ୟତ !!!

■ ■ ■

Nayagarh Autonomous College, Nayagarh, Odisha, India, Pin- 752069

DECLARATION

1.	Title of the Magazine	:	**NEW HORIZON**
2.	Place of Publication	:	Nayagarh
3.	Periodicity of Publication	:	Annual
4.	Printer & Publisher's Name	:	**Dr. Dadhibaman Sahu** Principal
	Address	:	Nayagarh Autonomous College, At/P.O./District- Nayagarh, Odisha PIN- 752069, (India)
	Nationality	:	Indian
5.	Editor's Name	:	**Dr. Ashok Kumar Mohanty** Reader & Head, Dept. of zoology
	Address	:	Nayagarh Autonomous College, At/P.O./District- Nayagarh, Odisha PIN- 752069, (India)
	Nationality	:	Indian
6.	Name of the Printing Press	:	**Mahabir Printers**
	Address	:	Khandapada Road, Nayagarh Odisha, PIN- 752069 (India)

I, Dr. Dadhibaman Sahu, Principal, hereby declare that the particulars given above are true to the best of my Knowledge and belief.

(Dr. Dadhibaman Sahu)