

Study on Water Analysis in Ponds in the Sabang Block Areas (W.B) India

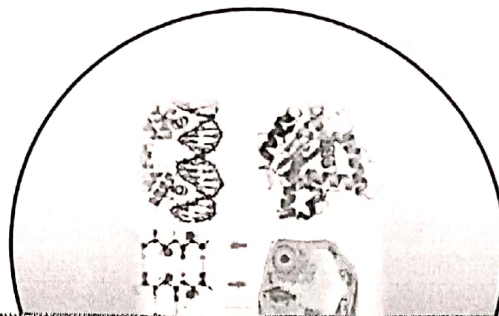
By
Uttam Kumar Maji, Ranajit Kumar Khalua and Kartik Maiti

ISSN 2319-3077 Online/Electronic

ISSN 0970-4973 Print

UGC Approved Journal No. 62923
MCI Validated Journal
Index Copernicus International Value
IC Value of Journal 82.43 Poland, Europe (2016)
Journal Impact Factor: 4.275
Global Impact factor of Journal: 0.876
Scientific Journals Impact Factor: 3.285
InfoBase Impact Factor: 3.66

J. Biol. Chem. Research



J. Biol. Chem. Research. Vol. 36, No. 1, Part C: 97-106, 2019

(An International Peer Reviewed / Refereed Journal of Life Sciences and Chemistry)

Ms 36/01/3636/2019

All rights reserved

ISSN 2319-3077 (Online/Electronic)

ISSN 0970-4973 (Print)



Dr. U. K. Maji

[http:// www.sasjournals.com](http://www.sasjournals.com)

[http:// www.jbcr.co.in](http://www.jbcr.co.in)

jbiolchemres@gmail.com

RESEARCH PAPER

Received: 15/04/2019

Revised: 19/04/2019

Accepted: 20/04/2019

Study on Water Analysis in Ponds in the Sabang Block Areas (W.B) India

Uttam Kumar Maji, *Ranajit Kumar Khalua and **Kartik Maiti

Department of Zoology, Balurghat B.Ed. College, Balurghat, W.B., India

*Department of Zoology, Narajole Raj College, Paschim Medinipur, W.B., India

**Department of Zoology of Raja N.L.K. Womens' College, Medinipur, W.B., India

ABSTRACT

This physic-chemical is changed in fresh water by the variable factors. Plankton develops by the physic-chemical changes in pond water significantly. This change involves the low and high temperature in the water body. Low and high level of pH is changed by the physic-chemical process. Dissolved oxygen decides the fresh water quality in the ponds. Its' maintain the water health. Free carbon dioxide in the pond is changed in the water by every factor. Physic-chemical change the conductivity of water after and before use of bacterial suspension.

Key words: Water analysis, Physic-chemical, Temperature, pH and Fresh water.

INTRODUCTION

Fresh water in the pond in Sabang block area is changeable in every month. This physic-chemical is

Comparative study of growth, production and survivility of *Catla catla* (Ham.) through Nitrifying and Denitrifying bacterial suspension

Kartik Maiti, A. K. Dolai, S. K. Banerjee, B. Mandal, Pantha Bandyopadhyay, A. Tewary, S. Patra, S. Giri² and Bidhan C. Patra¹

Aquaculture Research Unit, Department of Zoology, Vidyasagar University, Midnapore - 721 102 (West Bengal), India.

²Microbiology Unit, Department of Botany, Vidyasagar University, Midnapore - 721 102 (West Bengal), India.

(Accepted for Publication - 4th January, 2004)

Abstract

Nitrifying bacterial suspension proved to be relatively more powerful for enhancing the growth and production of fish. Denitrifying bacterial population is also showed better result than the result obtained from control pond. Effect of bacterial suspension both nitrifying and denitrifying along with locally available organic manure (semi dried cow dung) in case of experimental ponds and only semi dried cow dung for control pond, obtaining from the experiment conducted for two years for the growth, production and survivility of *Catla catla*. There are various factors causing variation of growth, production and survivility these are Temperature, food, size or age, season, maturity and other environmental parameters. In the present investigation, the percentage of growth had been relatively higher in Nitrifying bacterial suspension with semi dried cow dung treated ponds. In *Catla catla* initial weight was 1.62 - 1.70g and increased upto highest (experimental pond 2) 498.52g in the first year ($r = 0.991701, p < 0.05$) and initial weight was 2.02-2.63g and increased upto 505.89g (EP 2) in the second year ($r = 0.991366, p < 0.05$). In EP 3 and EP 4 initial weight was 1.70g and 1.65g and increased upto highest in EP 4 222.82g in the first year ($r = 0.997, p < 0.05$) and also highest in the second year 226.49g ($r = 0.993, p < 0.05$). These results are significantly higher than those in control pond for both the year of experiment.

Key words : Nitrifying, Denitrifying, suspension, organic manure (cow dung), fish growth.

Introduction

The progress in fishery science made in the last few decades has been tremendous. According to the annual statistical report of FAO, 1997 and Agriculture News, 1998, total world fish production was 112.30 million metric tones, however, total world fish production will be 51.8 million metric tones during the year 2025 (Śrivastava, 2000). Śrivastava, 2000 stated the decreasingness of the total world fish

production, so our motto is to develop such a technology for better fish production. Fish husbandry with it's great potential has also gained enormous importance in the recent years as a source of cheaper animal protein for human consumption and as an industry by itself, particularly in the rural areas of West Bengal and India. The Indian major carps are the most important economic species of fresh water reared in Indian ponds.

Traditional carp culture mainly depends on the availability of natural food in the pond, but it depends

¹Correspondent author : e-mail : bcpatra@yahoo.com

PREVALENCE OF UNDERNUTRITION AND ANAEMIA AMONG PRESCHOOL CHILDREN

Nirmalya Kumar Sinha^{1*}, Kartik Maiti², Aniruddha Ray⁵, Dhurjati Prasad Dutta⁶

¹Dept. of Nutrition, Raja N.L. Khan Women's College, Midnapore, West Bengal, India.

²Dept. of Zoology, Raja N.L. Khan Women's College, Midnapore, West Bengal, India.

³Associate Professor, Dept. of Medicine, R.G. Kar Medical College, Kolkata, West Bengal, India.

⁴Professor, Dept. of Medicine, R.G. Kar Medical College, Kolkata, West Bengal, India.

Email: nksinhakgp@gmail.com

(Received on dated : 30.05.2011; Accepted for publication 31.07.2011)

ABSTRACT

Background & Objectives: Childhood undernutrition among preschool children is a serious public health problem in developing countries like India. Undernutrition leads to reduction in growth and development of the organ. The present study is an attempt to assess the prevalence of undernutrition (underweight, stunting and wasting) among preschool children of Kankabati grampanchayat, Paschim Medinipur, West Bengal, India.

Methods: The study was a community based, cross-sectional survey carried out among 665 Bengali Hindu low socioeconomic preschool children (335 boys and 330 girls) of 2 to 6 year. The height and weight of each child were taken. Body Mass Index (BMI) was also determined according to 'Quatelets' Index. The results were analyzed by Z score values according to height for age, weight for age and weight for height with reference to NCHS.

Results: The overall prevalence of undernutrition among these children are underweight 54.9%, stunted 32.4% and wasted 37.9%. Severe (below 3 Z score) underweight, stunting and wasting was 11.7%, 15.19% and 7.9% respectively. Prevalence of underweight is higher in boys (52.8%) than girls (33.3%), stunting and wasting are also higher in boys (38.5% stunting and 38.8% wasting) than girls (26.3% stunting and 36.3% wasting). Some other diseases like angular stomatitis, Bitot's spot, marasmus found in very few children. Anaemia prevalence rate of 77.89% is observed among the children while Moderate to Severe anaemia is observed in 60.45% children.

Interpretation and conclusions: The finding of the present study revealed the wide spread prevalence of undernutrition among preschool children. This study clearly demonstrated seriousness of nutritional status of children. Awareness about balance diet, improvement in education and socioeconomic status, urgent nutritional intervention programmes, easy access to health facilities are the most important remedial measure..

No. of Pages: 8

No. of Tables: 5

References: 27

Keywords: Preschool Children, Community health, Undernutrition.

INTRODUCTION

It is well known that the nutritional status is a major determinant of the health and well-being among

children and there is no debate on the importance of the study of child nutritional status according to spatial and temporal dimension¹. Malnutrition

STUDY OF GROWTH AND PRODUCTION OF INDIAN MAJOR CARP *CIRRHINUS MRIGALA* (HAM.) WITH ORGANIC MANURE (SEMI DRIED COW DUNG), NITRIFYING AND DENITRIFYING BACTERIAL POPULATION APPLIED IN EXPERIMENTAL PONDS.

Kartik Maiti, Partha Bandyopadhyay, R. Hazra, Aditya K. Dolai, S. Patra,
S. Banerjee and Bidhan C. Patra

Aquaculture Research Unit, Department of Zoology, Vidyasagar University,
Midnapore - 721 102, West Bengal.

Accepted for publication- 15th March, 2004.

Abstract

In the present investigation the percentage of growth had been relatively higher in Nitrifying bacterial suspension with semi dried cow dung treated ponds. In *Cirrhinus mrigala* initial weight was 2.40 - 2.58g and increased up to highest 362.66g in experimental pond 2, ($r = 0.9981945$, $p < 0.05$) and lowest 168.56g in CP in the first year and the second year initial weight was 2.34 - 2.48g and increased upto highest 365.40g in EP 1 ($r = 0.986279$, $p < 0.05$) 361.49g in EP 2 ($r = 0.991366$, $p < 0.05$) and 209g in EP 4 ($r = 0.664$, $p < 0.05$) and 204.66g in EP 3 ($r = 0.653$, $p < 0.05$) and also highest in the second year 181.53g in control pond (CP). These results are significantly higher than those in control pond for both the year of experiment. Nitrifying bacterial suspension proved to be relatively more powerful for enhancing the growth and production of fish. Denitrifying bacterial population is also showed better result than the result obtained from control pond. There are various factors causing variation of growth, and production, these are Temperature, food, size or age, season, maturity and other environmental parameters. Effect of bacterial suspension both nitrifying and denitrifying along with locally available organic manure (semi dried cow dung) in case of experimental ponds and only semi dried cow dung for control pond, obtaining from the experiment conducted for two years for the growth, and production of *Cirrhinus mrigala*.

Key words : Nitrifying, Denitrifying, suspension, *Cirrhinus mrigala*, Organic manure.

Introduction

The progress in fishery science made in the last few decades has been tremendous.

According to the annual statistical report of FAO, 1997 and Agriculture News, 1998, Fish husbandry with its great potential has also gained enormous importance in the

recent years as a source of cheaper animal protein for human consumption and as an industry by itself, particularly in the rural areas of West Bengal and India. The Indian major carps are the most important economic species of fresh water reared in Indian ponds. Total world fish production was 112.30 metric million tones, however,

A Study to Assess the Magnitude of the Problem of Substance Abuse in a Peripheral District Town of West Bengal

Prasanta Kumar Das¹, Nirmalya Kumar Sinha²,
Asish Mukherjee³, Kartik Maiti⁴, Kanti Bhusan Chowdhury⁵

¹Associate Professor, Dept. of Psychiatry,
Midnapore Medical College & Hospital, Midnapore

²Dept. of Nutrition, Raja N.L. Khan Women's College, Midnapore

³Associate Professor, Dept. of Psychiatry,
Calcutta National Medical College & Hospital, Kolkata

⁴Dept. of Zoology (UG & PG), Raja N.L. Khan Women's College, Midnapore

⁵Assistant Professor, Dept. of Community Medicine,
Calcutta National Medical College, Kolkata

*P.G Department of Environment Sciences, Sambalpur University, Jyotibihar, Burla

¹Email: pkdas_46@yahoo.co.in

(Date of Receipt : 23-02-2012; Date of Acceptance for Publication : 25-05-2012)

ABSTRACT

Background: Substance abuse is a complex and multidimensional problem and this problem is not merely that of an individual and a drug or a community, but of the interaction between the triad. At the present moment, substance abuse has been showing a rising trend all over the world including India.

Aims: To study the severity of substance abuse (magnitude) among the participants who attended psychiatric outpatient department for the treatment in a remote town Midnapore.

Design and method: The present epidemiological survey was conducted by the Department of Psychiatry, Midnapore Medical College & Hospital, Midnapore to assess the severity of substance abuse e.g. alcohol, drug, sedative and other substances in the patients of psychiatric outpatients department. To diagnosis the severity of substance abuse, Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) score, developed by WHO, was followed.

Findings: Total ninety male patients, aged 12 to 79 years, came at psychiatry outpatient department treatment for substance abuse. Among the substance abusers, 26.67% were drug addicts, 14.44% alcohol user and 51.11% tobacco user.

Conclusions: The newer and greater stresses related to rapid changes in life styles may the cause of this substance abuse. Surprisingly consumption of the traditional drugs like cannabis was remarkably low as compared to alcohol and sedatives. It showed effects of urbanization and shifting from traditional way of life to modern life. This survey reflects the need to intensify efforts at the community level to provide the health education to immediate stop this situation.

Keywords: Substance abuse; Psychiatry OPD; ASSIST score.

VIRULENCE OF PSEUDOMONAS AND AEROMONAS
BACTERIA ISOLATED FROM ANABAS SP FROM LAL
DIGHI, PASCHIM MEDINIPUR, WEST BENGAL

Savantan Pradhan

Abhijit Maity*

Dr. Kartik Maiti**

ABSTRACT

The significance of *Aeromonas* and *Pseudomonas* bacteria in association with out breaks of diseases in feral and aquaculture fish production is of paramount important. Seven isolates of *Aeromonas hydrophila*(4) *A.voronii*(2) and *Pseudomonas aeruginosa*(1) isolated from normal and ulcer affected *Anabas sp* in Lal Dighi were examined for virulence. Invitro experiment was conducted in 10 disinfected 30L glass aquaria filled with chlorine free water. 300 healthy *Anabas sp* (60-100gm) were used in which 30 fishes were stocked in each aquarium. Two aquaria stocked with 20 fishes each were used control. The fishes were acclimatized for 19 days prior to the infection experiment. Each fish except the control intramuscularly injected with 0.1 ml of the experimental bacteria (concentration, 2.3×10^8 CFU/ml) using 21/guage sterile needle. The infected fishes were observed for 19 days. The injected bacteria were then isolated from the experimental fishes and subjected to morphological, biochemical and antibiotic susceptibility tests. Result showed that ;120 out of 190 infected fishes developed clinical abnormalities such as skin darkness, scales detachment, blindness and large irregular haemorrhage on the body surface, fin necrosis, exophthalmia and eye cataract/trachoma within four days and mortality rate of 97%. The isolated strains were motile, gram(-ve) and were resistant to Ampicillin, Streptomycin, Amoxyllin and novobiocin. This study concluded that *Aeromonas* and *Pseudomonas species* are responsible for the out break of ulcerative diseases in Lal Dighi.

Key words: Pseudomonads, Aeromonads, Virulence, *Anabas sp*, Lal Dighi

*Vinayaki Missions University, Student, Dept-Chemistry

**Dept. of Zoology (UG and PG) Raja N.L.Khan Women's college

Nutritional status of 2–6 year old children of Kankabati grampanchayat, Paschim Medinipur district, West Bengal, India

Nirmalya Kumar Sinha¹, Kartik Maiti², Pradip Samanta³, Dulal Chandra Das⁴, Priyanka Banerjee¹

Sri Lanka Journal of Child Health, 2012; 41(2): 60-64

Abstract

Objective: To assess the prevalence of undernutrition (underweight, stunting and wasting) among preschool children of Kankabati grampanchayat, Paschim Medinipur, West Bengal, India

Methods: The study was a community based, cross-sectional survey carried out among 410 Bengali Hindu low socioeconomic preschool children (198 boys and 212 girls) of 2 to 6 years. The height and weight of each child were taken. The results were analyzed by Z score values according to height for age, weight for age and weight for height with reference to NCHS.

Results: The overall prevalence of undernutrition among these children was: underweight 47%, stunting 43% and wasting 24%. Severe (below -3 Z score) underweight, stunting and wasting was 13.7%, 16.3% and 7.9% respectively. Prevalence of underweight was higher in boys (45.5%) than girls (43.9%); stunting and wasting were also higher in boys (44.9% stunting and 25.3% wasting) than girls (41.5% stunting and 22.6% wasting).

Conclusion: The findings of the present study revealed widespread prevalence of undernutrition among preschool children of Kankabati grampanchayat, Paschim Medinipur, West Bengal, India.

(Key words: Preschool children; community health; undernutrition)

Introduction

Nutritional status is a major determinant of the health and well-being among children and there is no debate on the importance of the study of child nutritional status according to spatial and temporal

¹Department of Nutrition, ²Department of Zoology, ³Department of Microbiology, ⁴Associate Professor, Department of Botany, Raja N L Khan Women's College, Midnapore, India.

(Received on 10 June 2011; Accepted on 20 July 2011)

dimension¹. Malnutrition continues to be a major public health problem throughout the developing world, particularly in South Asia and sub-Saharan Africa²⁻⁶. Preschool children constitute the most vulnerable segment of any community. Their nutritional status is a sensitive indicator of community health and nutrition⁷. Globally it is estimated that among preschool age children in developing countries nearly 183 million are underweight, 226 million are stunted and 67 million are wasted⁸. About 70% of the World's stunted children aged under five years live in Asia⁹. Since independence one of the greatest problems facing India is malnutrition among under five years old children. India has the highest occurrence of childhood malnutrition in the world¹⁰. As per the report of National Nutrition Monitoring Bureau and National Institute of Nutrition¹¹ nearly 43.8% children suffer from moderate degrees of protein energy malnutrition in the form of marasmus and kwashiorkor, 8.7% suffer from extreme forms of malnutrition and only 9.9% of the children are normal. Therefore, childhood undernutrition is a serious health problem in India including West Bengal. There is lack of sufficient data available on health profile and nutritional status among preschool children in Paschim Medinipur district. The present study is an attempt in this regard to evaluate the level of undernutrition, stunting and wasting among preschool children of Kankabati grampanchayat of Paschim Medinipur district in West Bengal.

Method

The Kankabati grampanchayat of Paschim Medinipur district is 23 metres above sea-level and 127 km away from Kolkata towards the west. The total area studied was 35.97 sq km. The study design was a community based, cross-sectional type and we investigated the area from May 2010 to April 2011. The investigation is based on 2–6 year old children. We visited the study area several times during the stipulated period. In our observation, out of 3,875 families only 1,535 families have 3,824 children of 2–6 years old. Out of 3,824 children 1,938 are boys and 1,886 are girls of which only 410 (198 boys and 212 girls) children were taken for investigation by systemic random sampling method¹². The socioeconomic

Original Article

Prevalence of anemia and its possible attributing factors in psychologically healthy women of reproductive ages in Midnapore (Jangalmahal-area), India

Sinha NK¹, Chattopadhyay JC², Das PK³, Maiti S^{4,5*}, Maiti K⁶¹Department of Nutrition, Raja NL Khan Women's College, Midnapore, ²Department of Anatomy, Medical College & Hospital, Kolkata, ³Department of Psychiatry, Medical College & Hospital, Kolkata, ⁴Dept. of Biochemistry and Biotechnology, Oriental Institute of Science & Technology, Midnapore, Vidyasagar University, WB, ⁵Founder and Secretary, Agricure Biotech Research Society, Midnapore, ⁶Dept. of Zoology, Raja NL Khan Women's College, Midnapore, WB, India.

Abstract

Background: Worldwide, anemia in pregnant women is associated with low birth-weight, perinatal and maternal mortality. The Childhood malnourishment results in ill-health and psychosocial problems. In the present study, prevalence of anemia is determined in a community-based cross-sectional survey (June 2010 to May 2011) in non-pregnant, psychologically fit and economically backward women (total 241, 15-49 years).

Methods: The investigation is based on interviews on a pre-tested, semi-structured questionnaire after testing with Mental Status Examination. Body mass index is assessed to evaluate undernutrition and thinness. Data processing and descriptive statistics were done using the SPSS, 2010. The Pearson χ^2 and ANOVA tests were performed to predict the level of significance.

Results: Anthropometric indices and hemoglobin level indicate that the prevalence of anemia (Hb<12 g/dl, WHO) is 69.7% ($p<0.01$), which is severe in malnourished individuals (30%). It is found that, the anemia status (primary and mild) is better correlated with undernutrition and thinness. It is also noticed that the moderate to severe anemia is more indicative to pathological state than physiological state in grade II/ III thinness. Likewise, anemia also occurring in normal or overweight group indicates, beside nutrition, influence of possible pathological, psychological or environmental factors are also occurring.

Conclusion: Present findings necessitates extensive health program. An unplanned urbanization resulting unfriendly socio-demographic changes is more detrimental than natural adversity associated rudimentary character of a rural area. Beside supplementation, proper health awareness is more important at policy making level for global management of anemia.

Key words: Anemia, Body Mass Index, Women's Health, Socioeconomic status, psychological factors.

Introduction:

Anemia is a global public health problem which is associated with an increased risk of morbidity and mortality, especially in pregnant women and young children^{1,2}. According to WHO, 2 billion people suffer from anemia worldwide³. It impairs the cognitive and physical development in children and work output in adults. The prevalence of anemia is disproportionately high in developing countries due to poverty, inadequate diet, certain diseases, frequent pregnancy and poor access to health services⁴. The investigators observed that the prevalence of anemia is 80% in pregnant and 60% in non pregnant women in South East Asia, which is 55.3% in India⁵.

Iron deficiency has been established to be the commonest cause of nutritional anemia⁶. Other important causes are malaria, intestinal worms, antenatal care and low Body Mass Index (BMI)⁷. Anemia also results in an increased risk of premature delivery, low birth weights and physical abnormalities in childhood. When the iron stores are severely exhausted (ferritin level $< 10 \mu\text{g/ml}$) different symptoms are manifested. Such as, increased infections, poor muscle coordination, shortness of breath, fatigue, sensitivity to cold, and decreased mental function⁸. Even moderate anemia makes women less able to work⁹. In this background, present study is designed to evaluate the prevalence of anemia among the psychologically healthy women in an Indian town and

Address for Correspondence:

Dr. Smarajit Maiti, Reader and Head, Post Graduate Department of Biochemistry and Biotechnology Cell & Molecular Therapeutics Lab, OIST, Vidyasagar University, Midnapore-721102.

Email: maitism@rediffmail.com

Reciprocity between partial immunization and malnutrition significantly impairs health of preschool children

Ankita Ray¹, Nirmalya K. Sinha², Smarajit Maiti^{3,4*}, Samir K. Roy⁵, Kartik Maiti⁶

¹Bandwan NRC, BPHC, Purulia, Pin 723129.

²Dept. of Nutrition, Raja N.L. Khan Women's College, Midnapore, 721102.

³Dept. of Biochemistry, Oriental Institute of Science & Technology, Midnapore, 721102, West Bengal, India.

⁴Founder and Secretary, Agricure Biotech Research Society, Mahatabpur, Midnapore, 721101, WB, India

⁵Residential Medical Officer & Clinical Tutor, Dept. of Pediatrics, Bankura Sammilani Medical College.

⁶Dept. of Zoology, Raja N.L. Khan Women's College, Midnapore, 721102.

*Correspondence Author:

Dr. Smarajit Maiti, Reader and Head, Post Graduate Dept. of Biochemistry, Cell & Molecular Therapeutics Lab, Faculty, Dept of Biotechnology, OIST, Vidyasagar University, Midnapore
Email: maitism@rediffmail.com

Abstract

Research question

What is the health status of partially immunized preschool children?

Setting

This study was done in rural part of Midnapore District and associated Jungle-Mahal area, West Bengal.

Design

Six month community based cross-sectional study

Participants

Sixty (60) preschool rural children were selected randomly

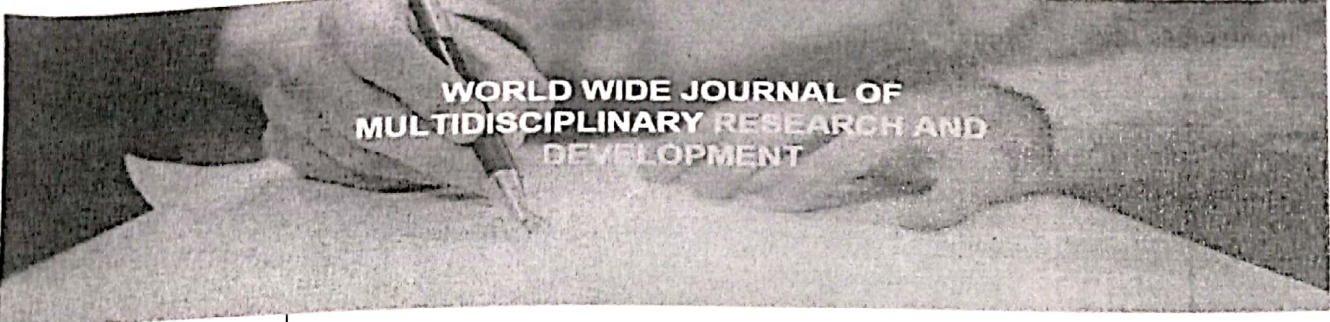
Methodology

Evaluation of immunization status and nutritional assessment by standard questioner method and Kuppuswami's socioeconomic status scale. Anthropometric measurement was done to evaluate thinness, stunting and wasting. Statistic was done with Version 10.0, SPSS.

Results

The partial immunization (PI) rates are higher in girl than boys (55.17% vs. 45.16%) and body mass index is better in fully-immunized children of either sex (girls 14.04 vs. 13.18 and boys 14.54 vs. 13.31, $p < 0.05$). The grade II/ III thinness, stunting, wasting and underweight are common in PI group but mild thinness as observed in fully immunized group indicates other factorial influences also. Partial immunization and malnourishment exhibits significant adverse and synergistic effects on children's health.

Keywords: Partial immunization; undernutrition; stunting; wasting; preschool children; India



WORLD WIDE JOURNAL OF
MULTIDISCIPLINARY RESEARCH AND
DEVELOPMENT

W.W.JMRD2017; 3(10): 133-135
www.wwjmr.com
International Journal
Peer Reviewed Journal
Refereed Journal
Indexed Journal
UGC Approved Journal
Impact Factor MJIF: 4.25
e-ISSN: 2454-6615

Arpita Bhakta
(Research scholar), Shri J.J.T
University, Chudela,
Jhunjhunu, Rajasthan, India

Rajarshi De
(Research scholar), Shri J.J.T
University, Chudela,
Jhunjhunu, Rajasthan, India

Kartik Maiti
(Research scholar), Shri J.J.T
University, Chudela,
Jhunjhunu, Rajasthan, India

Antibacterial activity of the whole body extract of marine mollusca (*Cypraea* sp.) and edible oyster (*Saccostrea cucullata*)

Arpita Bhakta, Rajarshi De, Kartik Maiti

Abstract

The present study was carried out to the antibacterial properties of the whole body extract of two species *Cypraea* sp. And *Saccostrea cucullata* against five enteric human pathogen collected from Frazergunj, Sundarban, Fish herber area of West Bengal and Digha. The marine environment is an exceptional reservoir for bioactive natural products. The marine environment comprise of complex ecosystem with a plethora of organisms and many of these organism are known to possess bioactive compounds as a common means of defense. The marine natural products have been investigated predominantly for their antimicrobial, cytotoxic antitumor and anti-inflammatory properties. The present study based on the following – 1. To ascertain the antibacterial activity of extract from locally available edible oyster (*Saccostrea cucullata* from Frazergunj, Sundarban, Fish herber) against five pathogen. 2. To ascertain the antibacterial activity of extract from marine mollusca (*Cypra* sp from Digha) against five human pathogen. 3. To determine the nature of bioactive compounds of the whole body extract from marine mollusca and edible oyster.

Keywords: Antibacterial activity, *Cypraea* sp, *Saccostrea cucullata*

Introduction

Ocean offers a large biodiversity of fauna & flora which is estimated to be over 50,000 species more than double of the land species. There are approximately 5,000 species of sponges, 11000 species of cnidarians, 9,000 species of annelids, 66,535 species of mollusks, 50,000 species of gastropods, 15,000 species of bivalves and 600 species of cephalopods have been reported to occur. Oyster are bivalve (two shelled) soft bodies mollusks. The Indian Sundarban is broadly divided into three salinity regions, out of which the high saline zone supports the oyster bed in the intertidal regions. In India, common oyster species are *Saccostrea cucullata*, *Crassostrea madrasensis*, *Crassostrea gryphoides*, *Crassostrea rivulalis* and *Crassostrea discoidea*. Out of these five dominant species the first three species are very common in the Indian Sundarban.

Materials and methods

1. Sample collection – Marine mollusca (*Cypraea* sp.) and Edible Oyster (*Saccostrea cucullata*) samples were collected from Digha and Frazergunj, Sundarban, Fish herber
2. Extraction - *Saccostrea cucullata* was collected from Frazergaunge & bought to the laboratory. The shells were broken and tissue sample were washed with distilled water. Extraction of bioactive compounds from the tissue sample was done with water, ethanol, methanol, acetone, hexane, butanol, ethyl acetate and dichloro methane. To 5g of tissue sample, 5ml of water and solvent extract were centrifuged well with mortar and pestle. Water and solvent extract were centrifuged at 15,000 rpm for 30 min and supernatant were stored at -20° C.
3. Antibacterial activity of Edible oyster extract (*Saccostrea cucullata*) – Five species of pathogenic bacteria namely *Escherichia coli*, *Klebsiella pneumoniae*, *Staphylococcus aureus*, *Shigella dysentery*, *Streptococcus faecalis* were used to screen the antibacterial activity of the edible oyster extracts. Pathogenic bacterial stains were inoculated in

Correspondence:
Arpita Bhakta
(Research scholar), Shri J.J.T
University, Chudela,
Jhunjhunu, Rajasthan, India