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INDEX

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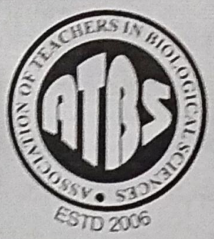

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ANTIOXIDANT ENZYME SUPEROXIDASE DISMUTASE (SOD) IN EDIBLE OYSTER *(CRASSOSTREA MADRASENSIS)* AS BIOCHEMICAL LNDICATOR OF AQUATIC POLLUTION

Jyothi V. Mallia

Department of Zoology, SICES Degree College of Arts, Science and Commerce, Jambulpada, Ambernath (W)

jyothivmallia@rediffmail.com

ABSTRACT

Antioxidant enzyme Super oxidase dismutase (SOD) of both diploid and triploid oyster *(Crassostrea madrasensis)* Preston was determined to establish possible environmental impact of pollution in Tuticorin bay, Tamil Nadu. Thermal heat is one of the major categories of environmental pollutant in Tuticorin bay. Activities of SOD in the muscle of diploid and two types of triploid (both I meiotic and II meiotic) oysters were studied. Adductor muscle samples were collected in 6 month old hatchery produced edible oyster spats reared in Tuticorin bay from three groups a normal diploid (2n), I meiotic triploid and II meiotic triploid. Allozyme analysis was used to detect the presence of SOD in sample tissue as allozymes are molecular tags in genetic, phylogenetic, taxonomic and evolutionary studies. In SOD, 2 zones of activities were noted. Polymorphism was exhibited only by triploid oysters. Heterozygosity was also increased in both triploids compared to diploid. Increased heterozygosity in both type triploid oysters for SOD allozyme loci reveal that this is a good biochemical indicator as they are easily identifiable. Heterozygosity will help the oysters to survive conditions like increase in temperature, pH. Differences in allozyme genotypes may result in differences in survival potential and fitness of triploid oyster.

Keywords : Allozyme, Antioxidant, Superoxidase dismutase, Triploid oyster, Heterozygosity

INTRODUCTION

In aquatic animals, xenobiotics can induce imbalance between the production of reactive oxygen species (ROS) and their removal and as a result oxidative stress occurs (Halliwell and Gutteridge, 2007). Super oxidase dismutase (SOD) as antioxidant is critical to cellular health, protecting the cells from excessive oxygen radicals free radicals and other harmful agents that cause premature aging or eventual cell death. Super oxide ion (O_2^-) is the starting point in the chain production of free radicals. SOD inactivates the superoxide ions by transforming it into hydrogen peroxide and is quickly catabolised into oxygen and water. In aquatic animals, many natural and anthropogenic factors (Xenobiotics) can induce an imbalance between the production of reactive oxygen (ROS) and their removal, as a result oxidative stress occurs.

Seasonal variation in antioxidant defence have been observed in the tissues of many aquatic organisms such as mullet (Pavlovic et al., 2004) Mussel (Borkovic et al., 2005, Vlahogianni et al., 2007). In the present study we investigate the activities of antioxidant

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STUDY OF SOIL PARAMEMTERS AND BIODIVERSITY IN AMBERNATH TALUKA

Kayden Anthony, Kiran Kamble and Jyothi V.Mallia

Department of Zoology, SICES Degree College, Ambernath (W)

ABSTRACT

The Ulhas river, which runs from Karjat to Thane creek, a distance of over 50 km, is one of the most polluted in Maharastra. There are over 800 industries on a 20-km stretch along the river between Ambernath and Dombivli. In Ambernath Taluka streams of Ulhas river are polluted with effluents of industries which further meet Waldhuni river. Typical pH levels vary due to environmental influences, particularly alkalinity. The alkalinity of water varies due to the presence of dissolved salts and carbonates, as well as the mineral composition of the surrounding soil . The acidity of the surrounding environment can also affect the pH of water. As Murphy in 2007 described acidic soils in the Amazon cause many of the lakes and rivers to naturally have low pH values. In the present paper we studied variation of pH in different places and effect on biodiversity of that places. We have collected soil samples from 3 station in Ambernath Taluka namely 1) around SICES Degree College, 2) around Ulhas river flowing through Nalambi village and 3) around the polluted stream arising from Morivali meeting Waldhuni river. From the soil samples pH of the soil is determined along with moisture contents by using standard procedure. Result of the work will be discussed along with the study of biodiversity of these water bodies.

Keywords : soil pH , animal biodiversity ,moisture content of soil , Ambernath

INTRODUCTION

Ambernath Taluka has a varied landscape including dense vegetated areas as well as industrial areas situated within a range of few kilometeres. Ulhas river runs from Karjat to Thane creek around 50 kms and is polluted with effluents of industries between Ambernath and Dombivali . Ulhas river further meets Waldhuni river, also flows through a nearby village named Nalambi. According to the Balkins Task Force, pH is defined as " the measure of acidity or alkalinity of a soil, numerically equal for neutral soils, increasing with increasing alkalinity and decreasing with increasing acidity, the pH scale commonly uses ranges from zero to fourteen" (Wolf 1999). There are many different reasons for the pH and the texture of soil to vary in a given area. There are soils that consist of sand, chalk, and clay, which can have an effect on the pH of the soil when collected. Reasons for the changes in pH can be caused by the soil near water bodies that hold sediments that would otherwise enter lakes and streams (Moseley 2001). Alkalinity of soil is essential for the delicate balance of life .Acidic enviorment with low pH may adversely affect the biodiversity of the area plant as well as animal life .In the present paper we have studied chemical properties of soil of 3 different areas like pH and moisture content and then compared the biotic factors of each area .

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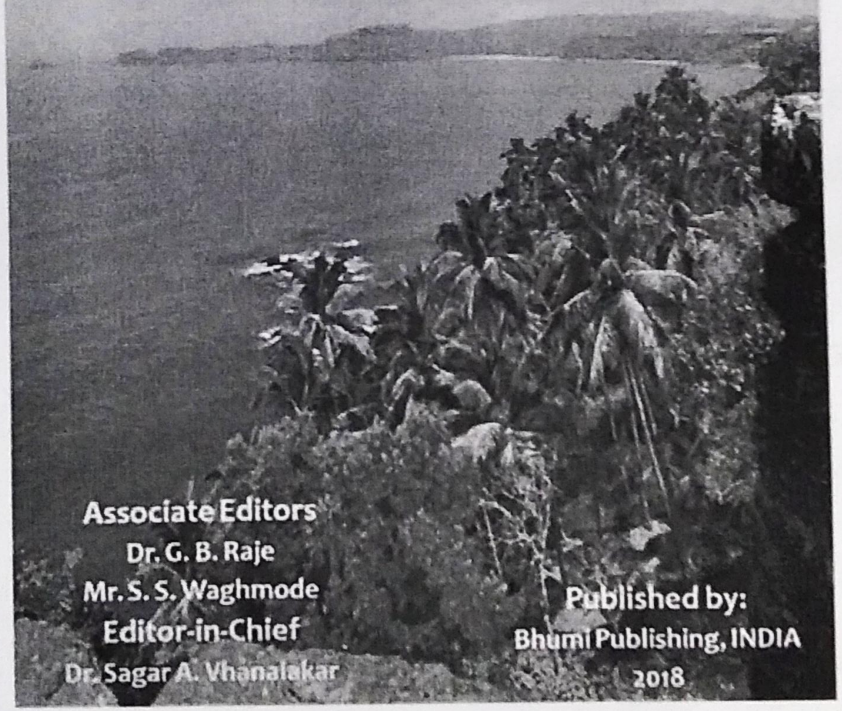

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STUDY OF PHYSICO CHEMICAL PARAMETERS AND FISH DIVERSITY IN AMBERNATH

Jyothi V. Mallia

Department of Zoology, SICES Degree College, Ambernath (W)

ABSTRACT:

Ambernath is a city in Thane District, Maharashtra has varied landscape. Ulhas River runs from Karjat to Thane Creek around 50 Kms and is polluted with effluents of industries between Ambernath and Dombivali. Present study was carried out to create information on certain physico-chemical characteristics and Icthyofaunal diversity along the Ambernath. Two stations were selected in Ulhas river and assessed the water parameters like pH, CO_2, Do, Temperature, Salinity and also observed fish diversity. The study revealed that river was moderately polluted and variation was observed in parameters. Fish diversity study revealed about 11 species of fishes from 4 families dominating with of Cyprinidae.

INTRODUCTION:

Fresh water habitat occupy a relatively small portion of earth's surface as compared to marine and terrestrial habitats, but their importance to man is far greater than their area [1]. Animal life is thus very widely distributed but its abundance and diversity vary greatly from place and from season to season according to the environmental condition. Fishes constitute a major portion of aquatic fauna especially in freshwater habitats. They are cold blooded, typically with gills and fins are primarily dependent on water as a medium in which they live.

Rivers experience violent fluctuation in composition, chemical characteristics and discharge. Unidirectional flow of rivers restricts the existence of certain types of fauna. Urbanization and other land water management practices have led to catastrophic changes in population of aquatic organisms. The Ulhas river, which runs from Karjat to Thane creek, a distance of over 50 km, is one of the most polluted in Maharastra. There are over 800 industries on a 20-km stretch along the river between Ambernath and Dombivli. In Ambernath Taluka streams of Ulhas river are polluted with effluents of industries. Fish diversity confined to Ambernath region is scarce in literature.

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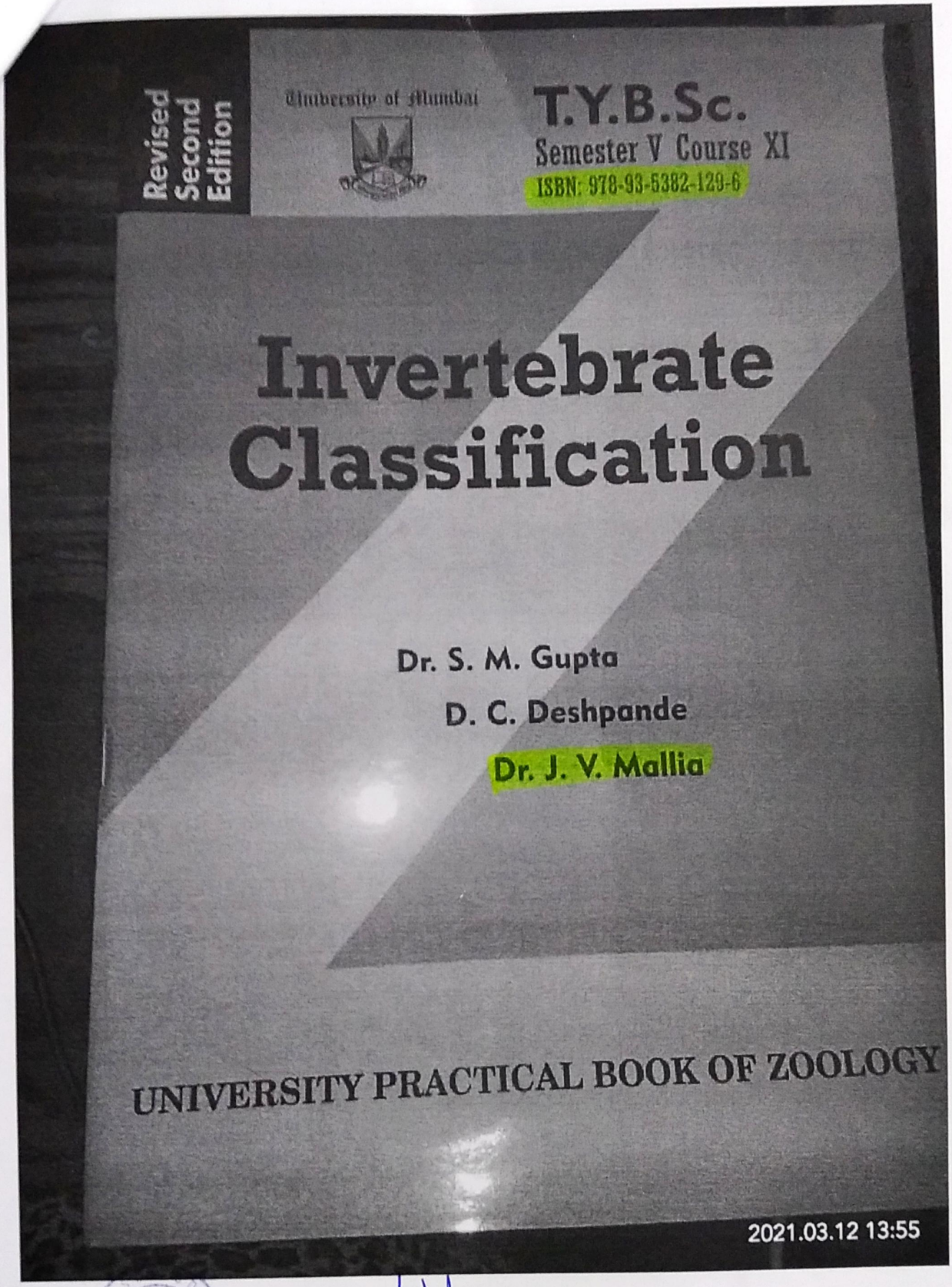

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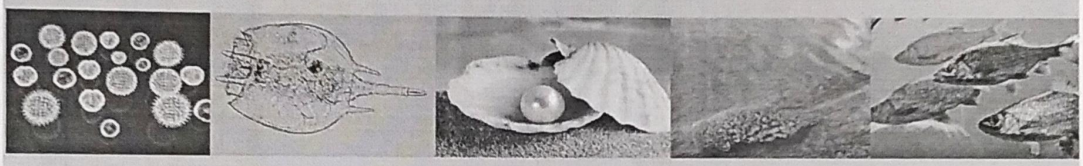

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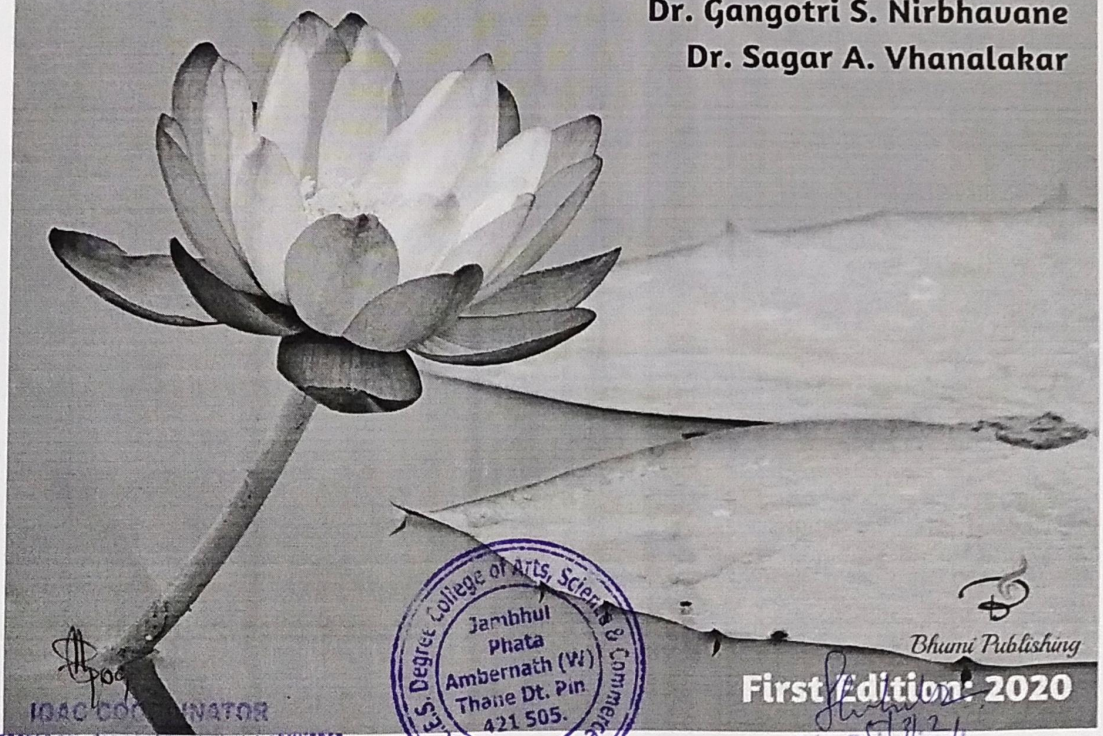

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Annapurneshwari H.

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Abstract:

Ulhas River is one of the main water body supplies water for Ambernath-Badlapur population and also supplies fresh water fish for food. It is polluted with effluents from industries. Present study was carried out to understand the situation on certain physico-chemical characteristics and Ichthyofaunal diversity along the Ambernath. Three stations were selected in Ulhas River and assessed the water parameters like pH, CO_2, DO, Temperature, Salinity and also observed fish diversity. The study revealed that river was moderately polluted and variation was observed in parameters. Fish diversity study revealed about 11 species of fishes from 4 families dominating with Cyprinidae.

Keywords: Water parameters, Fish diversity, Ulhas River, Cyprinidae

Introduction:

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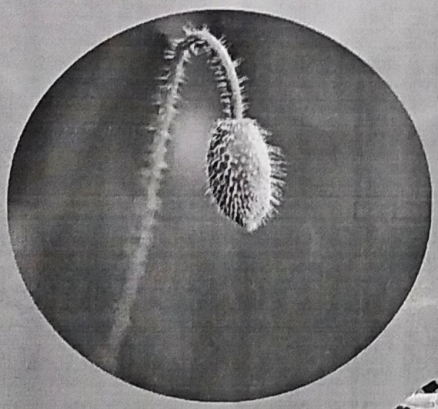

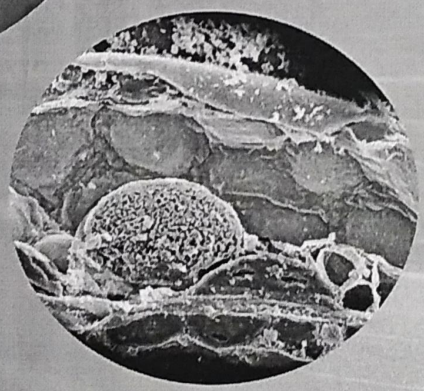

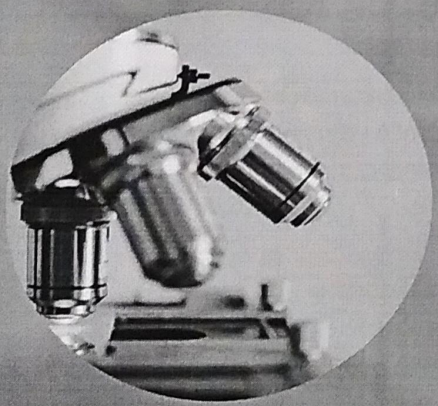

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GALLS ON *FICUS RACEMOSA*: A MORPHO-BIOCHEMICAL PERSPECTIVE

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Abstract:

Galls are the typical outgrowth of plant due to Insect, Bacteria, Fungi, Parasites and Mites which provide nourishment, shelter and protection to the inducer and its progeny. Galls study was done in *Ficus racemosa* belong to family Moraceae, a common plant in India. Galls Inducing wasp was identified up to species level and morpho-biochemical study was carried out in gall induced leaf and normal leaf of host plant. We found that galls in Ficus leaf was caused by *Pauropsylla depressa*, a hemipteran insect. The galls sample was collected from Badlapur to Dombivali zone. 35 galls were dissected after measuring the size and observed the stages of growth of the insect in them. Egg, 1st instar, later stages larvae were observed in collected sample. In the present study also noted that size of galls depends on number of vacuoles in it. Qualitative study of carbohydrate and protein was conducted by standard procedure. Present study observed significant difference in morpho biochemical study conducted in wasp inducing gall in Ficus.

Keyword: *Ficus racemosa*, Galls, *Pauropsylladepressa*, Moraceae, Hemiptera,

Introduction:

Ficus racemosa tree is having traditional and medicinal importance and is a large, deciduous evergreen plant coming in family Moraceae. They are commonly known as fig tree as "gular" in north India and "*atti"*in south India. It occupies a wide variety of ecological niches. Galls are the typical outgrowth of plant due to Insect, Bacteria, Fungi, Parasites and Mites which

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