

"Education for Knowledge, Science and Culture"

-Shikshanmahashri Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikashan Sanstha's

**Vivekanand College, Kolhapur (Autonomous)**

**Department of Zoology**

**B.Sc. III**

**Project 2019-2020**

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**Date-07/09/2019**

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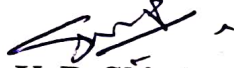


**DEPARTMENT OF ZOOLOGY**

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**Notice****Date:**

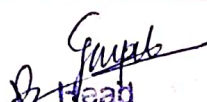
All the students of B. Sc. III (Zoology) are informed that as part of your syllabus, all have to complete one project for this academic year 2019-2020 carrying approximately 15 -20 marks weightage in your practical exam. For that you have to decide title of your project as well as complete your project within given period of time.

  
**Dr. K. P. Shinde**  
Head  
Department of Zoology  
Vivekanand College,  
Kolhapur

(2)

**Shri Swami Vivekanand Shikashan Sanstha's  
Vivekanand College, Kolhapur (Autonomous)  
Department of Zoology Year-2019-2020  
Class: B. Sc. III**

Sr. No	Name of Students	Guide name	Title of Projects
1	Ganesh S. Yegade Vinay Jadhav Niranjandas Sangawdekar	Dr. K. P. Shinde	Bird Biodiversity in Kolhapur and around area
2	Amol Suryappa Shingare Sanket Nemgonda Patil Mariya Faiyaz Bagwan	Ms. Kranti L. Kamble	Study of Ornamental fish in Kolhapur city
3	Shraddha Mangesh Jadhav Geeta Rajkumar Jewarani	Ms. Najnin A. Patel	Extraction and Characterization of Keratinase enzyme from <i>Xanthomas citri</i>
4	Rutuja Sanjay Mane Richa Ranjeet Ghotane	Dr. T.C. Gaupale	Extraction, Isolation, Separation of proteins from earthworm and its antimicrobial activity
5	Nikita Abhay Chopade Saurabh kishor Borgave	Ms. Geetanjali B. Satale	Effect of 4G Mobile radiation on <i>Drosophila melanogaster</i>
6	Mohini Umashankar Koli Rutuja Shankar Bhandari	Ms. Najnin A. Patel	Study of total protein contain in crab and its antimicrobial activity
7	Suyog Ravsaheb Patil Pruthviraj Ghodale	Ms. Yogita S. Pujari	Estimation and separation of amino acids from 5 <sup>th</sup> instar of silkworm tasar.
8	Sadanand G. Nalawade Prasad M. Kamble	Dr. T.C. Gaupale	Extraction, Isolation, Separation of proteins from snail and its antimicrobial activity
9	Saurabh Pratap Kumbar Anirudh Uday Ingale	Dr. Sneha S. Desai	Low cost Fish feed formulation from Sericulture and fishery waste
10	Pradnya P. Kamble Samrudhi S. Shahapurkar	Ms. Jyoti S. Sathe	Physico-Chemical analysis of water in Kolhapur
11	Rajani Vasant Kamble Sachin Kamble	Dr. Sneha S. Desai	Biodiversity of Spider in Gaganbawada region
12	Vaishnavi Amar Hande Pratiksha S. Gurav	Dr. Tejashri C. Patil	Diversity of Planktons From Rankala lake
13	Poonam Kiran Rugge	Ms. Geetanjali B. Satale	Insect Diversity in Vivekanand College campus and home area

  
 Head  
 Department of Zoology  
 Vivekanand College,  
 Kolhapur

A PROJECT REPORT ON:

“EXTRACTION, ISOLATION, SEPARATION OF PROTEINS FROM SNAIL AND  
IT'S ANTIMICROBIAL ACTIVITY”

SUBMITTED TO:

DEPARTMENT OF ZOOLOGY

VIVEKANAD COLLEGE, KOLHAPUR



IN THE PARTIAL FULFILLMENT OF BACHELOR OF SCIENCE IN  
ZOOLOGY

IN THE YEAR: 2019-20

NAME- KAMBLE PRASAD MACHHINDRA. ROLL NO-8256

NAME- NALAWADE SADANAND GANGARAM. ROLL NO-8266

CLASS B.Sc. III

THE GUIDANCE OF

**Dr. TEKCHAND C. GAUPALE**

Assistant Professor, Department of Zoology  
Vivekanand College, Kolhapur (Autonomous).

## **DECLARATION**

We the undersigned students, declare that the project entitled to "Extraction, isolation, separation of proteins from snail and it's antimicrobial activity" is submitted by us under the guidance of Dr. Tekchand C. Gaupale, Assistant Professor, Department Zoology, Vivekanand College, Kolhapur (Autonomous).

It is our original work. The empirical findings in this project are based on the data collected by us and it's authenticable to the best of our knowledge. The presented matter is not copied from any other source.

## ACKNOWLEDGEMENT

We would like to express our profound gratitude and deep regards to our project supervisor Dr. Teckchand C. Gaupale, assistant professor for his guidance throughout the project work. We also like to express our special thanks of gratitude to Prof. Dr. Kiran P. Shinde, Head of Department Zoology for providing us the opportunity to conduct the project. We are also thankful to Mr. Suraj Gabale for his help in extraction of protein and conducting the antimicrobial activity and also graceful to Miss S. H. Nadaf for her help in dialysis of protein.

We are also thankful to Miss N.A. Patel, Miss G.B. Satale, Miss. K.L.. Kamble, Miss. Y. S. Pujari, Miss. T. C. Patil, Miss. Jyoti Sathe and non-teaching staff of Department of Zoology and Department of Microbiology, Vivekanand College, Kolhapur for their cooperation and throughout our project work. We would also like to thank our parents and friends who helped us in financing the project within the limited time frame.

VIVEKANAND COLLEGE, KOLHAPUR  
(AUTONOMOUS)

DEPARTMENT OF ZOOLOGY

CERTIFICATE

THIS IS TO CERTIFY THAT Mr. KAMBLE PRASAD MACHHINDRA [ROLL NO.8256] AND Mr. NALAWADE SADANAND GANGARAM [ROLL NO. 8266] HAVE SATISFACTORY COMPLETED THE PROJECT ENTITLED "EXTRACTION, ISOLATION, SEPARATION OF PROTEINS FROM SNAIL AND IT'S ANTIMICROBIAL ACTIVITY" AS PER THE SHIVAJI UNIVERSITY,KOLHAPUR SYLLABUS FOR B.Sc. PART III COURSE IN ZOOLOGY, AND THIS IS THEIR BONAFIDE WORK IN THE ACADEMIC YEAR 2019-2020.

TO THE BEST OF MY KNOWLEDGE AND BELIEF THE MATTER PRESENTED IN THIS PROJECT IS ORIGINAL AND IS BASED ON THEIR OWN WORK .SUCH KIND OF WORK HAS BEEN SUBMITTED ANYWHERE.

DATE: 05 /03 /2020

PLACE: Kolhapur

  
GUIDE

  
13/3/2020  
EXAMINER

  
Head of Department  
Department of Zoology  
Vivekanand College,  
Kolhapur

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# 1. INTRODUCTION

Mollusks are an abundant and significant group in the trophic chain of the animal kingdom. Among mollusks, gastropods including snails and slugs, represent the most abundant class. Snails in particular are successful animals from an evolutionary point of view, having survived extreme environmental conditions for more than 600 million years, due to their capacity to adapt to different environments and to reach dry land. This indicates that snails have some special adaptive proteins with which they are able to survive in their environment. Snails are abundantly found everywhere and abundant phylum on the earth.

## MORPOLOGY

The snail is member of the phylum Mollusca. The general features of snails include a soft body with a hard calcium carbonate shell. In addition, the body is coated by a thin tissue called the mantle which secretes the shell. The snail has an unsegmented body has bilateral symmetry, and a ventral musculature foot that provides locomotion. They scrape algae from the substrate into their mouths where it is surrounded by mucus and pulled into their digestive system. The digestive system includes the digestive glad, intestine and stomach (Gonzalez et.al,2007)

### Tentacles

Small muscular appendage, long and retractable, having a tactile role.

### Foot

Large elongated muscular organ forming the lower portion of the snail and containing the head; it allows the snail to crawl.

### Growth line

Thin irregular protuberance of the whorl of the shell , corresponding to its successive growths.

### Head

Anterior portion of the foot of the snail containing the main sensory organs.

### Mouth

Anterior cavity of the digestive tract having a jaw and a rough tongue to graze on plant

### Eyestalk

Large muscular appendages, elongated and retractable, bearing an eye at its terminal end.

### Shell

Calcareous spiral casing formed of three successive layers that protect the organs; the snail can withdraw into it's shell.

### Whorl

Each of the swirls around the apex; they increase in diameter and form the shell

### Apex

Crown from which the shell grows.

### Classification of Snail

<b>Kingdom</b>	Animalia
<b>Phylum</b>	Mollusca
<b>Class</b>	Gastropoda
<b>Order</b>	Stylommatophora
<b>Family</b>	Helicidae
<b>Genus</b>	Achatina

Snails have been used as a food and as treatment for a variety of medicinal conditions. The extensive investigations have been made of the antimicrobial proteins of mollusks groups although whole body homogenates of some marine mollusks have been reported to contain a variety of antimicrobial and antioxidant compounds(Arias et.al,2009)

Recently, antimicrobial resistance developed by bacterial and fungal pathogens is one of the major health problems. Therefore, the development of advance antimicrobial therapies is in need for diagnosis of diseases. Molluscan meat is highly protein-rich meat and delicious increasing demand worldwide. From mollusc several bioactive compounds have been discovered. They are peptides, sterols, terpenes, polypropionate, nitrogenous compounds, fatty acid derivatives, miscellaneous compounds and alkaloids(Anand et.al,2002). Many bioactive compounds have been investigated predominantly for their antimicrobial, cytotoxic, anti-tumor and anti-inflammatory, antileukemic, antineoplastic and antiviral properties of mollusks. Antibacterial and antiviral activities have been previously reported in the hemolymph of several molluscan species such as sea hares, sea slug, oysters, and mussels. Over recent years, numerous studies on snail mucus composition have clarified many aspects of its properties, although much remains to be investigated on its antibacterial activity(Rajaganapathi et.al,2000)

There is no extensive work on the antimicrobial activity from snails in India. The protein derived bioactive peptides as an alternative to synthetic pharmaceuticals for the treatment of various diseases. In this study, we aimed to extract proteins from snail species and evaluate the antibacterial and antifungal activities of proteins against pathogenic bacteria and fungi for potential biomedical application(Blunt et.al,2009)

### Uses of Snail Slime and its Soft Bodies

- ❖ Snail soft bodies are good source of protein. It contains various proteins which are used as food in many countries.
- ❖ Snail slime is filled with nutritional requirements such as hyaluronic acid, glycoprotein proteoglycans, and antimicrobial and copper peptides, which are widely used in beauty products and also proven to be good for the skin from harm, disease, dryness and ultraviolet.
- ❖ Snail mucin is best famous for its anti-ageing elements. It can help to activate the formation of collagen and elastin, preserve skin from free radicals, calm skin, restore damaged cells and restore hydration.
- ❖ It is also recommended for dry skin, wrinkles, stretch marks, acne and rosacea, age spots and freckles, scars and blemishes.

A PROJECT REPORT ON:

**“Study of total protein content in crab and its antimicrobial activity”**

SUBMITTED TO:

Department of Zoology

**Vivekanand College, Kolhapur**

**(AUTONOMOUS)**



In the Partial Fulfillment of Bachelor of Science in Zoology

In the year: 2019-2020

Under the guidance of: -

**Project guide: Asst. Prof. Najnin A. Patel**

**HOD, Zoology: Prof. Dr. Kiran P. Shinde**

**Submitted by: - 1.Mohini Umashankar koli**

**2. Rutuja sanjay bandari.**

VIVEKANAND COLLEGE, KOLHAPUR  
(AUTONOMOUS)



DEPARTMENT OF ZOOLOGY  
**CERTIFICATE**

This is to certify that Miss. Mohini Umashankar Koli (Roll No. 8250) & Rtuja sanjay bhandari (Roll no 8246) have satisfactorily completed the project entitled "*Study of total protein content in crab and its antimicrobial activity*", as per the Shivaji University, Kolhapur syllabus for B.Sc.III course in zoology, and this is their bonafide work in the academic year 2019 -2020.

To the best of our knowledge and belief the matter presented in this project is original and is based on their own work. Such kind of work has not been submitted anywhere.

DATE:

PLACE: Kolhapur

*C. P. Koli*  
9/1/2020  
Project Guide

*P. B. Bhandari*  
13/3/2020  
Examiner

*C. P. Koli*  
9/3/2020  
HOD, Zoology  
Head  
Department of Zoology  
Vivekanand College,  
Kolhapur

## DECLARATION

We the undersigned students, declare that the project entitled "Study of total protein content in crab and its antimicrobial activity" is submitted by us under the guidance of Asst. Prof. Najnin A. Patel and Prof. Dr. Kiran Shinde (HOD, Dept. of Zoology). It is our original work. The empirical findings in this project are based on the data collected by us and it is authentic to the best of our knowledge. The presented matter is not copied from any other source.

Date:

Place: Kolhapur

## ACKNOWLEDGEMENT

We express my profound gratitude and deep regards to my guide Asst. Prof. Najnin A. Patel for her exemplary guidance throughout the project work. We would also like to express our special thanks of gratitude to Dr. S.Y Hongekar {Principal, Vivekanand College (Autonomous), Kolhapur} and Prof. Dr. Kiran P. Shinde (HOD, Dept. of Zoology) for providing me the opportunity to conduct the project on the topic "Study of total protein content in crab and its antimicrobial activity"

We are also thankful to all the teaching and non-teaching staff of Department of Zoology, Vivekanand College (Autonomous), Kolhapur for their cooperation and help throughout my project work.

We would also like to thank my parents and friends who helped me in finalizing the project within the limited time frame.

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INTRODUCTION

# CHAPTER 1

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# INTRODUCTION

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# PROTEIN

Proteins are polypeptides, which are made up of many amino acids linked together as a linear chain. The structure of an amino acid contains a amino group, a carboxyl group, and a R group which is usually carbon based and gives the amino acid its specific properties. These properties determine the interactions between atoms and molecules, which are: Vander Waals force between temporary dipoles, ionic interactions between charged groups, and attractions between polar groups.

Proteins form the very basis of life. They regulate a variety of activities in all known organisms, from replication of the genetic code to transporting oxygen, and are generally responsible for regulating the cellular machinery and determining the phenotype of an organism. Proteins accomplish their tasks in the body by three-dimensional tertiary and quaternary interactions between various substrates. The functional properties depend upon the proteins three-dimensional structure. The (3D) structures arise because particular sequences of amino acids in a polypeptide chain fold to generate, from linear chains, compact domains with specific structures. The folded domains either serve as modules for larger assemblies or they provide specific catalytic or binding sites.

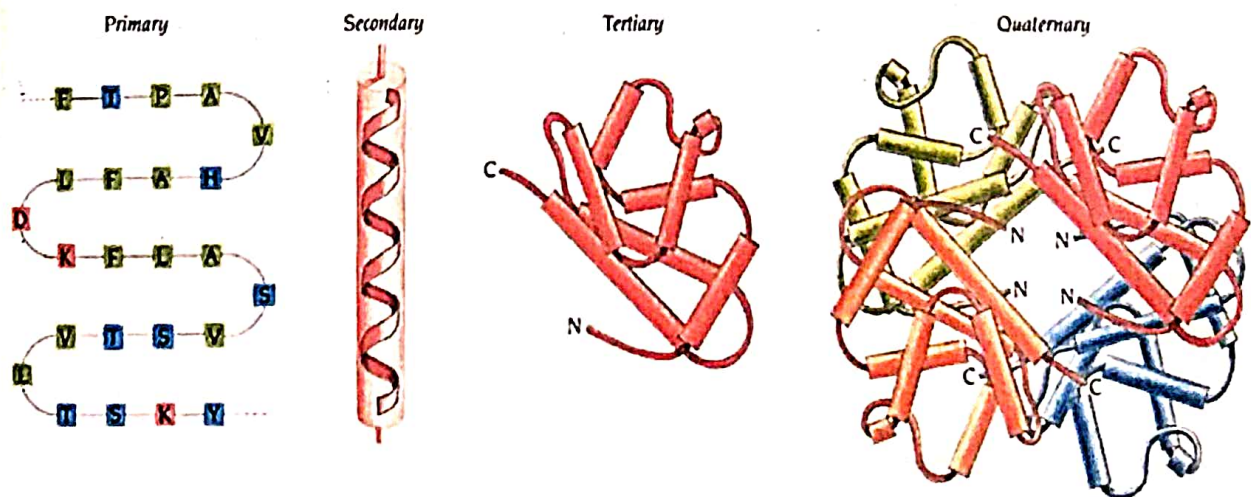


Fig: Structure of protein (source: Wikipedia)

Protein, highly complex that present in all living organisms protein are substance of great nutritional value and are directly involved in the chemical processes for life. The importance of

protein was recognized by chemists in the early 19<sup>th</sup> century, including Swedish chemistry john Jacob\_Berzelius\_who in 1838 coined the term protein, a word derived from the Greek Proteins, meaning "holding first place". Proteins are species- specific; that is, the proteins o one species differ from those of another species. They are also organ specific for instance, within a single organism, muscle proteins differ from those of the brain and liver.

A protein molecule is very large compared with molecules of sugar or salt and consists of many amino acids joined together to form long chains , much as beads are arranged on a string there are 20 different amino acids that occur naturally in proteins . Proteins of similar functions have similar aminoacids composition and sequence.

**VIVEKANAND COLLEGE, KOLHAPUR**  
(AUTONOMOUS)



**“BIODIVERSITY OF SPIDERS FROM GAGANBAWADA  
REGION.”**

A  
PROJECT REPORT  
SUBMITTED TO,

DEPARTMENT OF ZOOLOGY,  
VIVEKANAND COLLEGE, KOLHAPUR

IN PARTIAL FULFILLMENT OF THE DEGREE  
BACHELOR OF SCIENCE  
B. Sc. III

BY

MR. SACHIN SANJAY KAMBLE  
MS. RAJANI VASANT KAMBLE

Under the Guidance of  
PROF. DR. K. P. SHINDE  
HOD, Department of Zoology,  
Vivekanand College, Kolhapur  
DR. S. S. DESAI  
Asst. Professor, Department of Zoology,  
Vivekanand College, Kolhapur

YEAR: 2019-2020

# Vivekanand College, Kolhapur (Autonomus)

## Department of Zoology



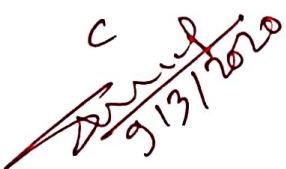
THIS IS TO CERTIFY THAT MR. SACHIN SANJAY KAMBLE AND MS. RAJANI VASANT KAMBLE HAVE SATISFACTORY COMPLETED THE PROJECT ENTITLED, "BIODIVERSITY OF SPIDERS FROM GAGANBAWADA REGION" AS PER THE SHIVAJI UNIVERSITY, KOLHAPUR SYLLABUS FOR B.Sc. PART III COURSE IN ZOOLOGY, AND THIS IS THEIR BONAFIDE WORK IN THE ACADEMIC YEAR 2019-2020.

TO THE BEST OF MY KNOWLEDGE AND BELIEF THE MATTER PRESENTED IN THIS PROJECT IS ORIGINAL AND IS BASED ON THEIR OWN WORK .SUCH KIND OF WORK HAS BEEN SUBMITTED ANYWHERE.

**Place: Kolhapur**

**Date:**

  
**Project Guide**

  
**Head of Department**  
Head  
Department of Zoology  
Vivekanand College,  
Kolhapur

  
13/3/2020  
**Examiner**

# DECLARATION

We, the undersigned, hereby declare that the work embodied in this project report entitled, "BIODIVERSITY OF SPIDERS FROM GAGANBAWADA REGION" submitted by us under the guidance of Dr. Sneha S. Desai Assistant Professor, Department Zoology, Vivekanand College, Kolhapur.

It is our original work. The empirical findings in this project are based on the data collected by us and it is authenticable to the best of our knowledge. The presented matter is not copied from any other source.

Place: Kolhapur

Date:-



MR. SACHIN SANJAY KAMBLE



MS. RAJANI VASANT KAMBLE

Project students

## ACKNOWLEDGEMENT

The work is supported by the Department of Zoology, Vivekanand College, Kolhapur. We are grateful to Prof. Dr. Kiran. P. Shinde, Head of Zoology Department for providing all the possible facilities. It gives us great pleasure to express our sincere gratitude towards our project guide Dr. Sneha S. Desai for her valuable guidance and encouragement till the completion of the work.

We are also thankful to all teaching and non-teaching staff of Department of Zoology, Vivekanand College, Kolhapur for their cooperation and throughout our project work. We would also like to thank our parents, my brother and friends who helped us in financing the project within the limited time frame.

Place: Kolhapur

Date:-



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## I. INTRODUCTION:

- INDIA DIVERSITY AMONG ANIMAL

India has some of the world's most biodiverse regions. The political boundaries of India encompass a wide range of ecozones—desert, high mountains, highlands, tropical and temperate forests, swamplands, plains, grasslands, areas surrounding rivers, as well as island archipelago. It hosts 4 biodiversity hotspots: the Himalayas, the Western Ghats, the Indo-Burma region and the Sundaland (includes Nicobar group of Islands. These hotspots have numerous endemic species.

India, for the most part, lies within the Indomalaya ecozone, with the upper reaches of the Himalayas forming part of the Palearctic ecozone; the contours of 2000 to 2500m are considered to be the altitudinal boundary between the Indo-Malayan and Palearctic zones. India displays significant biodiversity. One of seventeen megadiverse countries, it is home to 7.6% of all mammalian, 12.6% of all avian, 6.2% of all reptilian, 4.4% of all amphibian, 11.7% of all fish, and 6.0% of all flowering plant species.

The region is also heavily influenced by summer monsoons that cause major seasonal changes in vegetation and habitat. India forms a large part of the Indomalayan biogeographical zone and many of the floral and faunal forms show Malayan affinities with only a few taxa being unique to the Indian region. The unique forms includes the snake family Uropeltidae found only in the Western Ghats and Sri Lanka.

- CLASS INSECTA CLASSIFICATION

**Insect**, (class Insecta or Hexapoda), any member of the largest class of the phylum Arthropoda, which is itself the largest of the animal phyla. Insects have segmented bodies, jointed legs, and external skeletons (exoskeletons). Insects are distinguished from other arthropods by their body, which is divided into three major regions: (1) the head, which bears the mouthparts, eyes, and a pair of antennae, (2) the three-segmented thorax, which usually has three pairs of legs (hence "Hexapoda") in adults and usually one or two pairs of wings, and (3) the many-segmented abdomen, which contains the digestive, excretory, and reproductive organs.

In a popular sense, "insect" usually refers to familiar pests or disease carriers, such as bedbugs, houseflies, clothes moths, Japanese beetles, aphids, mosquitoes, fleas, horseflies, and hornets, or to conspicuous groups, such as butterflies, moths, and beetles. Many insects, however, are beneficial from a human viewpoint; they pollinate plants, produce useful substances, control pest insects, act as scavengers, and serve as food for other animals. Furthermore, insects are valuable objects of study in elucidating many aspects of biology and ecology. Much of the scientific knowledge of genetics has been gained from fruit fly experiments and of population biology from flour beetle studies. Insects are often used in investigations of hormonal action, nerve and sense organ function, and many other physiological processes. Insects are also used as environmental quality indicators to assess water quality and soil contamination and are the basis of many studies of biodiversity.

- **CLASS ARACHNIDA (arachnids)**

Approximately 90,000 species classified in 13 orders, found nearly worldwide. Chelicerate arthropods with adult body composed of 18 somites organized into 2 major structures, the prosoma, or cephalothorax (6 somites), and posterior opisthosoma, or abdomen (12 somites); prosoma has 6 pairs of appendages, 4 pairs used for walking, last 2 pairs lost in some mites; instinctive behaviour highly developed.

- **Order Araneida or Araneae (spiders)**

38,000 species found nearly worldwide. Size 0.05–9.0 cm; chelicerae 2-jointed, with ducts for poison glands; abdomen nonsegmented, bearing spinnerets for silk production.

A PROJECT REPORT ON:

**“DIVERSITY OF PLANKTONS FROM RANKALA LAKE”**

**SUBMITTED TO:**

**DEPARTMENT OF ZOOLOGY**

**VIVEKANAD COLLEGE, KOLHAPUR**



**IN THE PARTIAL FULFILLMENT OF BACHELOR OF SCIENCE IN  
ZOOLOGY**

**IN THE YEAR: 2019-20**

**NAME- GURAV PRATIKSHA SARDAR. ROLL NO-8245**

**NAME- HANDE VAISHNAVI AMAR. ROLL NO-8259**

**CLASS B. Sc. III**

**THE GUIDANCE**

**Dr. Tejashri C. Patil.**

Assistant Professor,  
Vivekanand College, Kolhapur.

**CERTIFICATE**

This is to certify that the project entitled, "Diversity of planktons from Rankala Lake" being submitted herewith for the Degree of Bachelors of Zoology under the faculty of Science of Shivaji University, Kolhapur, is the result of the original work completed by Miss V. A. Hande and P. S. Gurav under my supervision and guidance and to the best of my knowledge and belief, the work embodied in this project has not formed earlier.

**Place: Kolhapur.**

**Date:**

*H. J.*  
*9/13/2020*

Teacher in charge

*P. S. Gurav*  
*9/13/2020*

Examiner

*C. S. Patil*  
*9/13/2020*

Head  
Department of Zoology  
Vivekanand College,  
Kolhapur

Head of department

## DECLARATION

We are the undersigned students, declare that the project "Diversity of Planktons from Rankala Lake" is submitted by us under the guidance of Dr. Tejashri C. Patil, Assistant Professor, Department Zoology, Vivekanand College, Kolhapur.

It is our original work. The empirical findings in this project are based on the data collected by us and it is authenticable to the best of our knowledge. The presented matter is not copied from any other source.

### ACKNOWLEDGEMENT

I wish to express my deepest sense of gratitude to my guide **Dr. T. C. Patil**, for their continuous encouragement and valuable guidance during the entire period of my Project work. It is a genuine pleasure to express my deep sense of thanks to Head of Department, **Dr. K. P. Shinde**, Vivekanand College Kolhapur for administrative help during the Project work.

I am also thankful to **Mr. Mohite**, **Mr. More** and **Mr. Mali**, for their constant co-operation during project work.

  
Miss. Gurav Pratiksha Sardar.

Miss. Hande Vaishnavi Amar 

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## INTRODUCTION:

The term plankton comes from Greek, plankton means Wandering or drifting. Planktons are small organisms that inhabit in oceans, seas and fresh water bodies. They are non-motile or small or weak to swim against the current and present in a wandering state. Planktons are made up of animals and plants which floats freely in the water or have less power of swimming hence they carried from place to place by the water current. Planktons are the main producers of both marine and freshwater ecosystem provides food for larger animals.

The plankton looks like plant is called phytoplankton and the plankton which are animal like is known as zooplankton. Several planktonic organisms are not like plants or animals so they are called as protists.

Phytoplankton is a flora or vegetation of freely moving, small organisms that float with water current. Phytoplankton utilise carbon dioxide release oxygen. Phytoplankton of fresh water usually rich in green algae, blue green algae, and diatoms and true flagellates. In fresh water ecosystem large amount of green algae and cyanobacteria frequently colour the lakes and affects the taste of drinking water. The amount of phytoplankton varies seasonally and depends on light temperature and minerals, it increases in spring. Phytoplankton forms lowest tropic level in fresh water ecosystem.

Zooplankton is heterotrophic planktons which ranging from microscopic organisms to large species, such as jellyfish. Zooplankton is found within large water bodies, including oceans and freshwater systems. Zooplankton is drifting ecologically important organisms that are an integral component of the food chain. The most important types of zooplankton include the radiolarians, dinoflagellates, cnidarians, crustaceans, chordates, and molluscs. Zooplankton consumes a variety of bacterioplankton, phytoplankton and even other zooplankton species. Since such organisms reside at the surface of bodies of water, zooplankton is also typically found in the upper waters. Zooplankton generates major link between primary producers and secondary consumers in food web and also acquire intermediate position in food web and mediates the transfer of energy from producer to consumer level. Zooplanktons are the best and essential food materials of the water creatures. Nearly all the fishes in their larval stages were dependent on it and some of them exclusively feed on planktons.