A

PROJECT REPORT ON

"Isolation of Magnetosome containing bacteria From soil sample"

SUBMITTED BY,

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SUBMITTED TO,

VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY.

FOR PARTIAL FULFILMENT OF BACHELOR OF SCIENCE IN BIOTECHNOLOGY

THE YEAR

2018-2019

UNDER THEGUIDANCE OF,

Mr. S. S. Sutar

"Education For Knowledge, Science and Culture"

- Shikshan Maharashi Dr Bapuji Salunkhe

Shri

Swami Vivekanand Shikshan Sanstha's

VIVEKANAND COLLEGE (AUTONOMOUS) KOLHAPUR

Department of biotechnology

This is to certify that **Miss. Sutar Trupti Dhanaji**

Exam No: 9331 .has satisfactorily completed a Project Report as on "Isolation of Magnetosome containing Bacteria from soil sample" a part of syllabus prescribed by SHIVAJI UNIVERSITY Kolhapur, for B.Sc. III course in Biotechnology (Entire) and this Project report represents her bonafied work in the year 2018-2019.

Place-Kolhapur

Dates 23/03/19.

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Teacher in Charge | Examiner 23/03/19 | Head of Department

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I thank them for helping to collect all information required throughout the project, to study the Isolation of Magnetosomes containing bacteria by means of introduction and experience.

I am grateful to all teachers for valuable suggestion during my project work.

I am also thankful to the non- teaching staff members who helped us to carry out the project satisfactorily.

I record my sincere thanks to Vivekanand College(Autonomous) , Kolhapur for allowing me to carry out my project work successfully in our college labs.

Trupti

Miss. Sutar Trupti Dhanaji

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Aim and objective of the work :

Aim : "To Isolate Magnetosome containing Bacteria from the Soil sample ".

Objectives :

1. Isolation of Magnetosomes containing bacteria.
2. Characterization of bacteria.

Materials and Methods:

Requirements:

1. Glasswares :

1. Flask
2. Measuring cylinder
3. Petriplates
4. Saline tubes
5. Test tubes
6. Pipettes

2. Reagents and chemicals:

1. Nutrient Broth
2. Ferric chloride
3. Agar Powder
4. Sodium chloride – NaCl

3. Other Requirements:

1. Soil sample
2. Magnets
3. Distilled Water
4. Nichrome wire loop

Result and conclusion :

Magnetosome containing Bacteria were isolated from soil sample and morphological characters were studied.

Colony morphology:

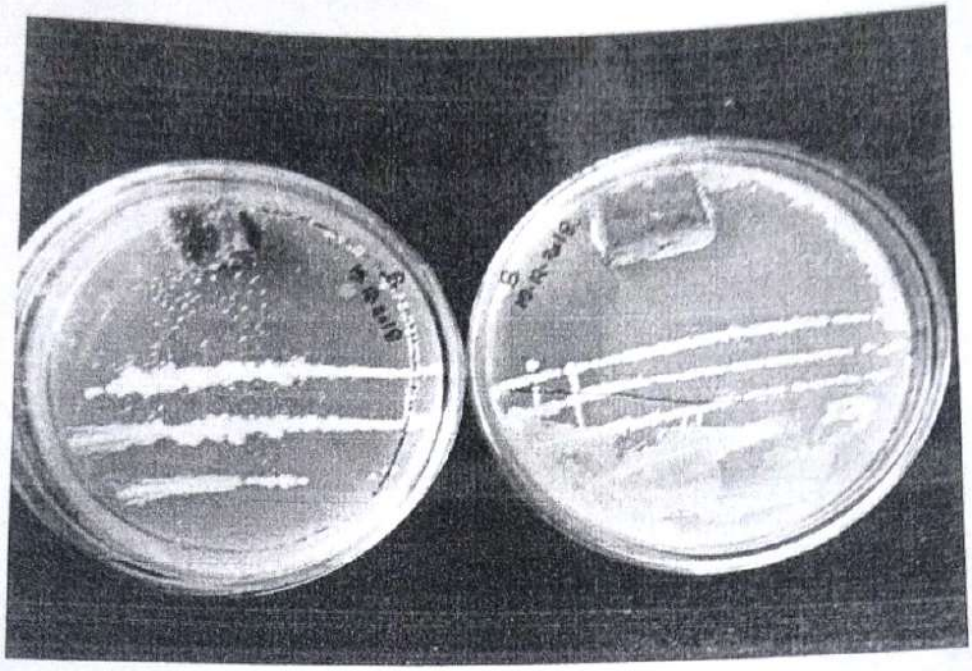
Size	Shape	Margin	Elevation
2mm	Circular	Entire	Convex

Colour	Surface	Opacity	Consistency
Yellow	Smooth	Opaque	Moist

Gram nature : Gram positive

Motility : Motile (Vibratory motion)

Catalase test : Positive



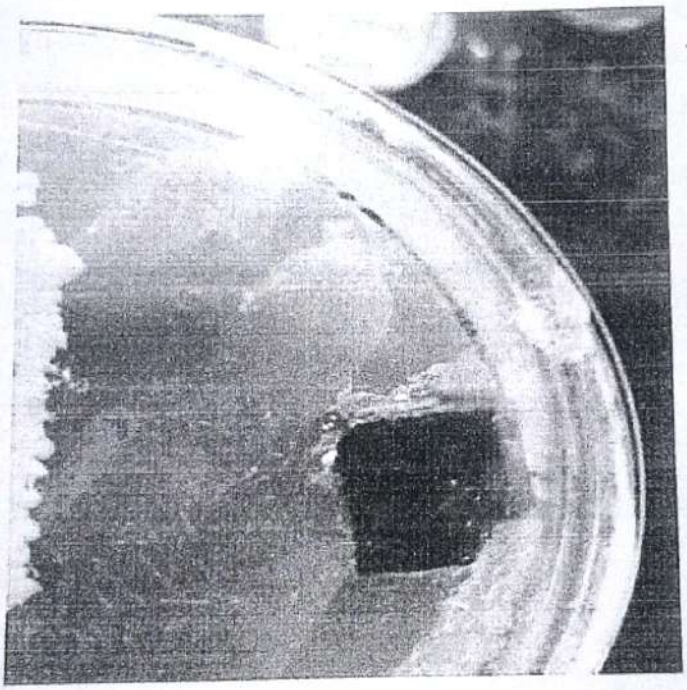


Fig 1 (A): Isolation of Magnetosome containing bacteria

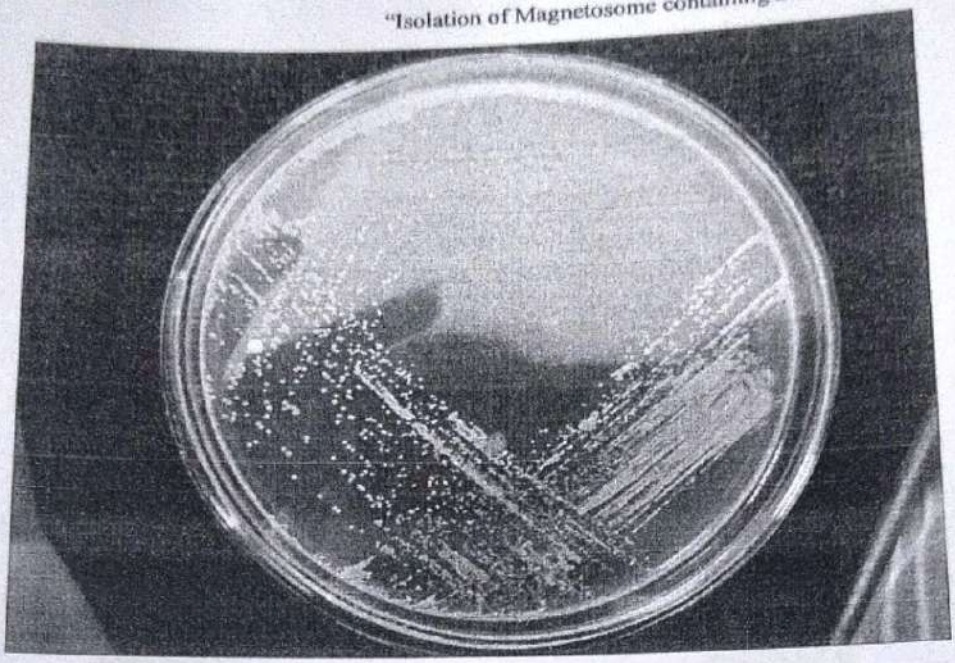
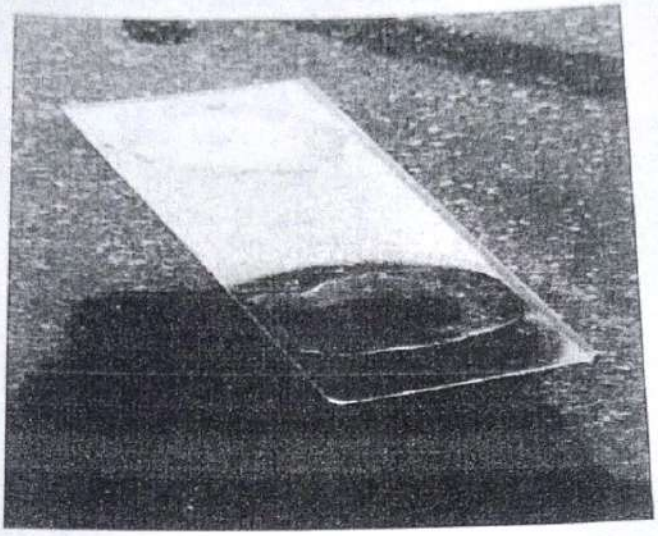


Fig 2: Four quadrant streaking of pure culture of magnetosome coantaining bacteria.



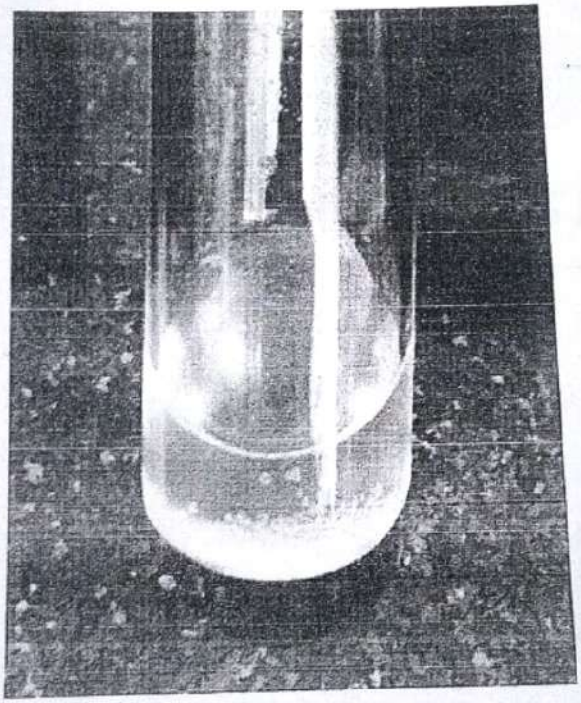


Fig no. 4 : catalase test

Fig no. 5 : IMViC Test

CONCLUSION AND FUTURE ASPECTS :

Future prospects since the magnetosomes were discovered, people have been studying for more than 40 years. With the successful separation and culture of several magnetosome-producing microorganisms, the study of magnetosome has been carried out from the initial analysis of the morphological structure and chemical composition to the molecular and genetic level. Meanwhile, due to the uniform particle size, high chemical purity, unique magnetic properties, low toxicity and good biocompatibility, the magnetosomes have been widely used in various fields. However, the tedious process of cultivation and the poor production hindered the extended application of the magnetosomes. Improved methods for producing strains from existing high-yield magnetosome or isolating a large number of new magnetosome-producing microorganism is a primary objective. Additionally, it has been discovered that the easy-to-cultivate Non-MTB can produce magnetosomes although their number is less. We need to further improve the understanding of the synthesis mechanism of magnetosomes to deepen the study of Non-MTB. In recent years, the magnetosome membrane proteins have new achievements in the field of proteomics and genomics, but so far the complete synthesis of the magnetosome has not been fully explored. Once the interaction of the magnetosome membrane proteins is fully understood in the magnetosome formation and the crystal biomineralization mechanism, the application of functional magnetosomes can be explored more. Meanwhile, the application of magnetosomes in medicine, life exploration, magnetic materials and other aspects will be greatly improved.