

STUDY OF EFFECT OF ROOT NODULE BACTERIA FROM WEED *MIMOSA PUDICA* ON THE GROWTH OF SEED GERMINATION.

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INTRODUCTION: The economic stability of India is dependent on the agricultural yield [1]. Soil bacterial strains play a very important role in crop production. [2]. *Mimosapudica* is a weed legume growing in soil. It possesses root nodules. Symbiotic relationship undergoes in leguminous plant with respective root and stem module bacteria. The relationship is Iron dependent, nodule formation requires iron as well as nitrogenase system and leghaemoglobin for nitrogen fixation. [3]. The aim of this study is to check how *Rhizobium* culture helps in nitrogen fixation and how it plays a role in enhancing the seed germination, plant growth.

MATERIAL & METHODS: [4]

- Collection of plant- *Mimosa pudica*.
- Separation of Root nodules.
- Isolation of root nodulating bacteria:
- Healthy root nodules placed in a petri plate.
- Crushed to obtain a milky suspension of bacterioids.
- Suspension streaking on CRYEMA media [5]
- Incubation of plate at 28 °C for 24- 48 hrs.
- White translucent colonies obtained.

RESULTS:

- The strain observed was gram negative and did not absorb red colour when cultured in YEMA containing Congo red as indicated in fig.No.1.
- Isolated *Rhizobium* strains did not absorb red colour from CRYEMA medium and from the biochemical test it is confirmed that the isolated strain was of *Rhizobium*.
- Siderophore are the protein capable of sequestering iron from the surroundings. *Rhizobium* helps in siderophore production which absorbs iron from the surrounding media and helps in germination of seed. On the other hand seeds which were not inoculated with *rhizobium* culture absorb iron but with slow rate and germination is slow or delayed as indicated in fig.No.2.



Fig.1. Plate showing growth of *Rhizobium* on Yema media and Cryma media

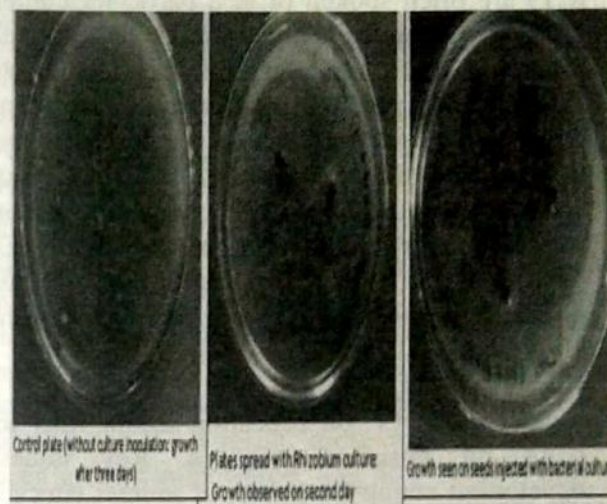


Fig.2. Plate showing growth on MS media (MS- Murashige and Skoog)

CONCLUSION:

- On the basis of the findings, it is concluded that *Rhizobium* culture helps in nitrogen fixation and thus it can play a role in enhancing the seed germination, plant growth and ultimately to increase crop yield.

REFERENCES:

1. Vibha Nehra and Madhu Choudhary (2015): A review on plant growth promoting rhizobacteria acting as bioinoculants and their biological approach towards the production of sustainable agriculture. *Journal of Applied and natural science*. 7 (1) Page-540-556.
2. Shraddha Bhatt, Dr. R.V. Vyas (2013): Isolation and identification of Root nodule bacteria of Mung bean (*Vigna radiata* L) for biofertilizer production. *International Journal of research in pure and applied microbiology*: 3 (4) Page No.127-133.
3. Raychaurchuri N, S.K.Das and P.K.Chakraborty (2005): Symbiotic effectiveness of siderophore overproducing mutant of *mesorhizobium cicero*. *Polish J. microbial*, 54: 37- 41.
4. V.M Ghorpade and S.S. Gupta (2016) : Siderophore production by *Rhizobium nepotum* isolated from "stem nodule of *Aeschynomene indica*". *International Journal of advanced research in biological sciences*. Vol.3, Issue -7, Page 105-108.
5. Holt J.S, N.R.Kreig, P.H.A.Sneath, J.T.Staley and S.T.Williams (1994) *Bergey's manual of determinative bacteriology* 9th Edition, Kippincolt Williams and Wilkins, Baltimore USA, ISBN-13 Page-787.