

**“ACCESSING” FOR A “DIAZOTROPH” FROM A TEA GARDEN IN BARAK VALLEY, ASSAM, (INDIA).
Short communication.**

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(Received on Date: 9th February 2016

Date of Acceptance : 26th April 2016)

ABSTRACT

With elevated view to the “diazotrophy” activities of “bacteria” might be mentioned by several times while doing research in their relevant meadows on “microbial diversities”, but if not their “nitrogen attainment” capacity is determined fully it could not be possible to confirm that they “fix” “nitrogen”. For that reason a tea garden at “Barak valley”, Assam in India, located at the remotest part of the country was chosen, from that a “tea garden” of denoting a “Toklai variety” of tea plant call as “TV” was spent for and thereby an effort was agreed for isolating an “isolate” from that tea garden in the region. Once the, tea garden was selected for picking a type of bacteria from the variety of tea plant, this was done from the soil fraction where soil intermingles nicely with the roots. On picking up the type of bacteria it was brought to the laboratory and it was then allowed to culture on a medium that is without “nitrogen”, after that, the “colonies of simply that necessitated sort” were picked up for that isolated “microbe”. For that the “physico-chemical” features and at last the “nitrogen” acquiring finale had been affirmed effectively.

Key words: Affirmed, “colonies of simply that necessitated sort”, picking.

No: of Tables :1

No: of Figures :1

No:of References:11

INTRODUCTION

It has been stated by [Subba Rao, N.S, 1983] regarding "isolation" of *Beijerinckia* spp. by from "rhizospheric" portion of many orchard plants and some plantations [Tennakoon, P.L.K., 2007]. Similar sort of work had been carried out by [Veena, S.C., 1999] that he has reported the occurrence of the same type of spp. at the rhizospheric localization of sorghum [Tennakoon, P.L.K., 2007]. According to [Mukhopadhyay, S.N, 2006], for minimizing the disturbance of "ecosystem", it has been supposed that "biofertilizers" to be a safe and a method that would be a replacement for "chemical fertilizers". It has been urged that "biofertilizers" are the cheapest, and an ecofriendly resources. It has been believed that "biofertilizers" "progresses in texture of soil by upgrading "pH" and some other properties of soil. They also helps in preparation of "growth promoting" essences for plants like "IAA", "amino acids" and "vitamins" etc. "Biofertilizers" helps in improvising the "nitrogen", "phosphorus", and "potassium", through the terms "N:P:K" as they are better than the "farmyard

manures and other types of "manures" [Chavada Nikul.B. et al., 2010].

MATERIALS AND METHODS

Collection of soil:

The soil was pull together at "random" from "tea rhizosphere", after that it is brought in the laboratory. Then "isolate" was developed in "N-free", "*Beijerinckia* medium" [Becking, 1961] after that other test was completed.

Tests that were completed:

First the bacterial variety, it must be observed on that medium, then "pure colonies" were kept ready. "Lastly", the analysis for its reduction for "acetylene" was checked by the practices described by [Hardy et al., 1968] and [Hardy et al., 1973] with a small amendment. Then from that "Physico chemical traits" were identified by standard protocols said accordance with [Balamurugan et al.,2010] for pH and Temperature with a slight modified protocol and adjustment to "1% NaCl" for that, the protocol followed was by [Jadhav et al.,2010] with slight changes.

RESULTS AND DISCUSSION:

Table I: “Physico chemical” test:

Isolate	Growth at 25 °C	Growth at 30 °C	pH6	pH8	1% NaCl tolerance
Beij 1	yes	yes	yes	yes	yes

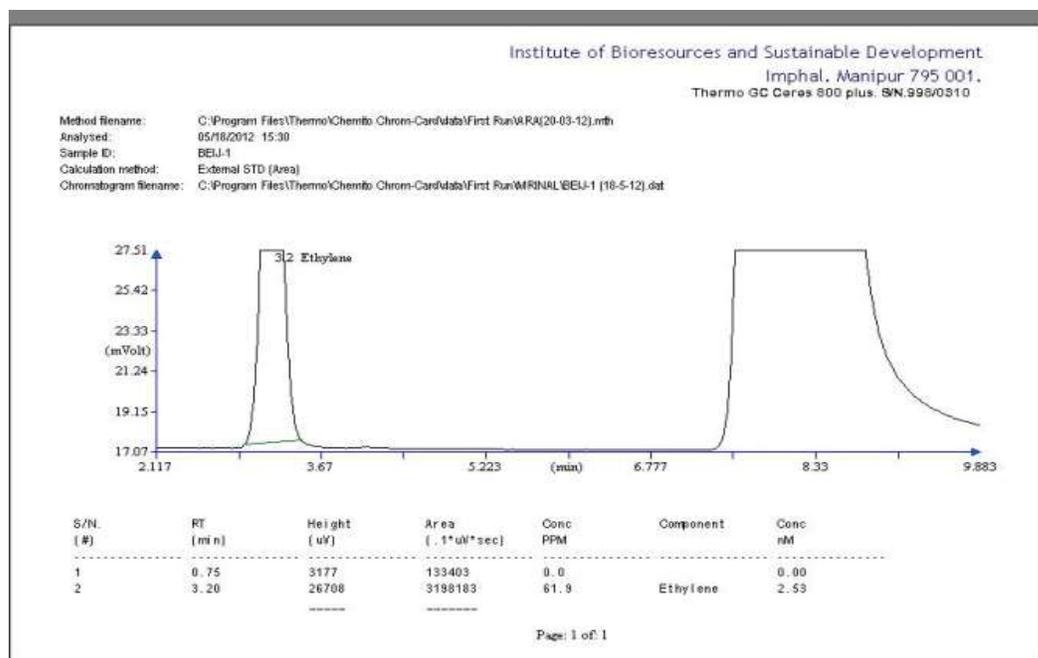


Fig I: “ARA Graphical representation”:

DISCUSSION

From the above picture it satisfied the primary condition that the isolate is an “N-fixer” a considerable quantity of “N” is secured by it, that is apparent from the “graph”. Regarding the isolate it has been reported by [Veena, S.C., 1999] and [Naiker, R.B., 2003] that the range of N fixed by *Beijerinckia* isolates ranged between 2.86 to 5.54 mg. Finally it has been approved that it’s an “N” fixer. All the “physico chemical” “character” has proven that it does utilizes the conditions.

ACKNOWLEDGEMENTS

It is a must to thank everyone behind the work especially to O.N.Tiwari his comates, Director of IBSD during the time of the work, also to DBT India for providing the way to do such work. It is my humbleness that I must acknowledge all from right beginning of the work, to sources from where knowledge is gathered also to my own institute for its help. The isolate for better recognition was called as “Beij 1”. The “ARA” type of works has been completed for other “microbial varieties” so far by the

same researcher but for this one is being expressed here only.

REFERENCES

Balamurugan, A., Princy, T., Pallavi Vidhya, R., Nepolean, P., Jayanthi, R. and PremKumar, R (2010). Isolation and Characterization of Phosphate Solubilizing bacteria in tea (*Camellia sinensis*). *Journal of Biosciences Research*. **1 (4)**: 285-293.

Becking, J.H. (1961). Studies On the nitrogen fixing bacteria of the genus *Beijerinckia*- Geographical and ecological distribution in soils. *Pl. Soil*. **14**: 49-81.

Chavada Nikul.B.; Amit, D. and Bhavesh, P. (2010). Study on Diazotrophic and IAA producing bacteria isolated from Desert soil, submit an application for Biofertilizer. *Int J. Applied Biol. and Pharma. Tech.* Vol I. Issue-3. 1067-1071.

Hardy, R.W.F., Holsten, R.D., Jackson, E.K. and Burns, R.C. (1968). The acetylene-ethylene assay for nitrogen fixation: Laboratory and field evaluation. *Plant Physiol*. **43**: 1185-1207.

Hardy, R.W.F., Burns, R.C. and Holsten, R.D. (1973). Application of the acetylene-ethylene assay for measurement of nitrogen fixation. *Soil Biol. Biochem*. **5**: 47-81.

Jadhav, G.G., Salunkhe, D.S., Nerkar, D.P. and Bhadekar, R.K (2010). Isolation and Characterization of salt-tolerant nitrogen-fixing microorganisms from food. *EurAsian Journal of Biosciences*. **4**: 33-40.

Mukhopadhyay, S.N. (2006). Ecofriendly Products through Process Biotechnology in the Provision of Biotechnology Economy-Recent Advances. Technorama; A. supplement to IEI News, March.

Naiker, R.B. (2003). Characterization of endorhizosphere diazotrophic bacteria and their influence on growth and yield of maize plants. *Msc (Agri) Thesis*, University of Agricultural Sciences. Dharwad.

Subba Rao, N.S. (1983). Nitrogen fixing bacteria associated with plantation and orchard plants. *Can. J. Microbiol.* **29**: 863-866.

Tennakoon, P.L.K. (2007). Studies on plant growth promoting microorganisms of tea (*Camellia sinensis* L. (o) Kuntze) Plants. Thesis submitted for partial fulfillment of the award of Master Degree in agricultural sciences in Agricultural microbiology. Department of agricultural Microbiology. College of Agriculture. University of Agricultural Sciences .Dharwad.

Veena, S.C. (1999). Development of inoculum consortia for enhanced growth and nutrient uptake of sorghum (*Sorghum bicolor* L.). *Msc (Agri.) Thesis*, University of Agricultural Sciences. Dharwad.