International Journal of Agricultural Sciences
Volume 9 | Issue 1| January, 2013 | 63-66

RESEARCH PAPER

Isolation of root nodule bacteria from *Trigonella foenum graceium*

POOJA AGRAWAL*, VIDESH PATERIYA[1], CHHAYA NAGAR[2] AND ALOK GARG[3]
Department of Applied Microbiology and Biotechnoloy, Dr. H.S. Gour University,
SAGAR (M.P.) INDIA (Email : dr.poojagrawal@gmail.com)

Abstract : Wild legumes were collected from three different places of Patkoi village, district Sagar. A total of 27 bacteria were isolated from 3 different samples of wild leguminous plant *Trigonella foenum graceium.* The nodules of wild methi (*Trigonella*) yielded bacteria other then *Rhizobium* with different cultural characteristics. Only eight isolates were circular with exopolysaccharide secretion rest were showing different colony characteristics. The colonies were white in colour and the elevation were found to be convex also called as pelvinate colony. In citrate utilization test all isolates found to be negative except the isolates 13B and W07. Where as all isolates were able to grow at alkaline pH 11 but showed poor growth at acidic pH 4. W07 isolate were given positive result for indole production while remaining 7 isolates were negative. Isolates 13B and W07 shown positive result while tested for 3-ketolactose production.

Key Words : *Rhizobium*, Nodulation, Wild leguminous plant, Isolation, *Trigonella foenum graceium*

View Point Article : Agrawal, Pooja, Pateriya, Videsh, Nagar, Chhaya and Garg, Alok (2013). Isolation of root nodule bacteria from *Trigonella foenum graceium. Internat. J. agric. Sci.,* **9**(1): 63-66.

Article History : Received : 11.05.2012**; Revised :** 20.08.2012**; Accepted :** 16.10.2012

INTRODUCTION

Soil micro-organism serves as biogeochemical agents for the conversion of complex organic compounds in to simple inorganic compounds or in to their constituent elements. This overall process is called as mineralization conversion of complex macromolecules in simpler usable forms (Pelczar *et al.*, 1996).

Rhizobia are genetically diverse and physiologically heterogeneous group of symbiotic nitrogen fixing bacteria that form nodules on the roots or rarely on stem of legume hosts within which bacteria fixes atmospheric nitrogen in to ammonia. A fully functional symbiosis recuries successful survival ability of bacteria even under adverse environmental conditions within the soil. Rhizobia frequently encounter various stress that effect their growth, their initial steps of symbiosis and the capability of nitrogen fixation (Zahran, 1999). The wild (naturally growing) leguminous plants living in arid or semi-arid regions are subject to severe environmental conditions. A competitive and persistant rhizobial strain is not expeted to expressits full capacity for nitrogen fixation as the limiting factor eg; salinity, unfavourable soil, temperature and nutrient deficiency impose limitation on the vigour of the host legumes (Brock *et al.*, 1995) According to Date (1974) the most satisfactory growth of *Rhizobium* can be obtained on the media containing yeast or other plant extract. According to Dubey *et al*. (2010) symbiotic nitrogen fixation by *Rhizobium* strains with legumes is important for agricultural productivity. Biological nitrogen fixation is a process that can only be performed by certain prokaryotes. In some cases, some bacteria are able to fix nitrogen in a symbiotic relationship with plants (Geurts and Bisseling, 2002).

The present investigation was aimed to study the *Rhizobium* associated with nodulation in certain wild leguminous plants. An attempt has also been made to characterize them on basis of certain biochemical properties.

MATERIALS AND METHODS

Collection of crop plants :

Rooted plants of wild leguminous crops have been

*** Author for correspondence**
[1]S.V. Govt. P.G. College, NEEMUCH (M.P.) INDIA, [2]Govt. M.L.B. College, BHOPAL (M.P.) INDIA, [3]Thapper University, PATIYALA (PUNJAB) INDIA