RESEARCH ARTICLE

ISOLATION AND CHARACTERIZATION OF NATIVE *AZOTOBACTER* ISOLATES FROM RHIZOSPHERIC SOIL SAMPLES

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Abstract: A total of thirty *Azotobacter* isolates were obtained and characterized on the basis of their colony morphology, microscopy and biochemical test. Isolates were repeatedly subcultured on *Azotobacter* agar (Mannitol) medium to obtain pure cultures of *Azotobacter*. All the isolates showed creamy translucent, mucoid, and circular shape colony morphology. Colonies having *Azotobacter* like morphology were microscopically analyzed and those depicting oval-rod shaped Gram negative bacteria were selected. All *Azotobacter* isolates were further characterized by different biochemical test. Isolates A-2, A-8, A-16, A-23, A-24 and A-28 showed positive results in all the biochemical tests (Triple sugar iron agar test, Citrate utilization test, Methyl red test, Voges-Proskauer test, Catalase test, Oxidase test,Nitrate reduction test, Urease test, Starch hydrolysis test and Motility test). Further, antibiotic sensitivity profiling of these isolates was done all the isolates were found resistant to Amoxyclav and Erythromycin and all were inhibited by the Ciprofloxacin by forming a clear zone of 15mm. All isolates were also tested for Phosphorus solublization activity on PVK medium and none of the isolates were able to solubilize phosphorus. These *Azotobacter* isolates were tested for physiological efficiency on different pH (6, 7, and 8). All isolates grew well on alkaline medium of pH value 8. Twenty five isolates grew well at pH 6 and 7. It was observed that A-13, A-17, A-19, and A-20 showed no growth at pH 7. Results showed that A-15, A-19 and A-20 were unable to grow at pH 6.

Keywords: Isolation, *Azotobacter*, Phosphorus solublization, Characterization

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