

Nitrogen fixing activity of halotolerant *Azotobacter* strains isolated from sodic soil

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ABSTRACT : The present research work was conducted to identify and screen the nitrogen fixing potential of salinity tolerant *Azotobacter* strains to be used as bio-fertilizer. In present study, a total number of 15 halotolerant *Azotobacter* strains were isolated and efficient 8 nitrogen fixing strains were identified and studies further. All the isolates were rod shaped with variable morphology at prolonged incubation, gram negative and non spore former. The salt tolerant result revealed that only the isolate number *Azotobacter* sp. (F05) were found, which could tolerate maximum up to 4% NaCl concentration and all the strains can tolerate up to 2% NaCl concentration. The range of nitrogen fixation activity by *Azotobacter* was (2.20 mg N/g substrate to 9.00 mg N/g substrate). The maximum nitrogen fixation potential was showed by *Azotobacter salinestrus* (F12) strain (9.00 mg N/g substrate), followed by isolate *Azotobacter chroococcum* (F02) (7.20 mg N/g substrate) and least nitrogen fixation potential was showed by *Azotobacter* sp. (F06) (2.20 mg N/g substrate). All the isolates of *Azotobacter* showed the growth at pH 9.0 i.e. the isolates are alkali tolerant. From these results, it can be concluded that these stress tolerant strains of *Azotobacter* could be a better option to develop as bio-fertilizer formulation for the growth and yield of the crop in sodic soil.

Key Words : *Azotobacter*, halotolerant, molecular identification, nitrogen fixation, sodic soil.