

## **Azotobacter : Its role in sustainable agriculture**

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**ABSTRACT :** Current soil management strategies are mainly dependent on inorganic chemical-based fertilizers, which caused a serious threat to human health and environment. Therefore, the exploitation of beneficial microbes as a bio fertilizer has become paramount importance in agriculture sector for their potential role in food safety and sustainable crop production. The application of *Azotobacter* sps in the agricultural field as bio-fertilizer has increased many fold in the recent years due to its ability to fix nitrogen and through production of various growth substances in the soil. Their effects on the plant has markedly enhanced crop production in agriculture and their by open the door to meet the demand of food for ever increasing population. Being soil bacteria, the genus synthesizes auxins, cytokinins, and GA-like substances, and these growth materials are the primary substances controlling the enhanced growth. These hormonal substances, which originate from the rhizosphere or root surface, increase the mineralization of nutrient in the soil and thus benefit the crop in many way.

**Key Words:** *Azotobacter*, cyst, PGPR, nitrogen fixation, inoculant, microbial fertilizer.