

البحث الخامس

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Title	Occurrence and Nitrogenase activity of Diazotrophic Azospirella in Fayoum soils, Egypt.
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ABSTRACT

Occurrence, identification and N₂-ase activity of diazotrophic azospirella isolated from different Fayoum soil samples prevailing under various conditions, has been investigated as a major aim. Ten soil samples were chosen according to variations in some soil properties *i.e.* salinity, organic matter and texture, in order to cover, as possible, all soil types available. The highest N₂-ase activity was found to be related to N₂- fixing azospirella counts. Seventy two azospirella colonies were obtained and purified and identified. According to some morphological and physiological characters studied they were mainly more related to *A. lipoferum*. Cultural and physiological properties, as well as, N₂-ase activity of different isolates were determined. Five, out from the seventy two isolates from each soil, were finally selected for detailed study on the basis of better growth in N- free semi-solid malate medium. Highly significant positive correlation coefficient was obtained between N₂-ase activity and azospirella count in soil ($r = 0.768$) and highly significant negative one with salinity ($r = - 648$). Furthermore, No correlation was obtained between organic matter content and N₂-ase activity. Thus, it could be said that, the azospirella activities have a fundamental role in sustainable agriculture development as bio-inoculant under different soil conditions leading to perform the economic and environmental goals.