

Agriculture & Horticulture

June 27-29, 2016 Cape Town, South Africa

Plant growth promoting rhizobacteria as alleviators for soil degradation

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The long-term development of global socio-economic systems requires the sustainable use of natural resources. The sustainable use of soil resources depends on 3 factors: soil characteristics, environmental conditions, and land use. These factors interact on systems-based principles, where the change in one factor causes alteration in the others. Land degradation can be considered in terms of the loss of actual or potential productivity or utility as a result of natural- or human-induced processes acting upon the land; it is the decline in land quality or reduction in its productivity. The latter comprises important concerns related to eutrophication of surface water, contamination of groundwater, and emissions of trace gases (CO₂, CH₄, N₂O, and NO_x) from terrestrial/aquatic ecosystems to the atmosphere. Soil structure is the important property that affects all three degradation processes. Around 3.5% of the two billion totals are estimated to have been degraded that the degradation is reversible only through costly engineering measures, if at all. Just over 10% has been moderately degraded, and this degradation is reversible only through major on-farm investments. Of the nearly 1.5 billion ha in cropland worldwide, about 38% is degraded to some degree. If this trend continues, 1.4–2.8% of total cropland, pasture, and forest land will be lost by 2020. Declining yields (or increasing input requirements to maintain yields) could be expected over a much larger area. These data are, however, likely to overestimate the problem, as they do not account for the effects of land improvements, which also appear to be widespread.

Biography

Metin Turan has completed his PhD from Ataturk University Soil Science Department. He is currently working as full Professor at Yeditepe University Genetics and Bioengineering Department. He has published more than 100 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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