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PHYSIOLOGICAL AND BIOCHEMICAL PROFILE OF BACTERIAL ISOLATE FROM RHIZOSPHERE OF BRINJAL (SOLANUM MELONGENA L.)

Jenifer Lolita C[1] & Keshamma E[2]

[1]*Research Scholar, Department of Botany, Maharani Cluster University, Palace Road, Bengaluru, Karnataka, India*

[2] *Research Scholar, Department of Biochemistry, Maharani Cluster University, Palace Road, Bengaluru, Karnataka, India*

ABSTRACT

Rhizosphere, phylloplane and caulosphere is the region where a complex community of microbes, mainly bacteria and fungi are present. The microbe plant interaction in these regions can be beneficial, neutral, variable, or deleterious for plant growth. The bacteria that exert beneficial effects on plant development are termed plant growth promoting bacteria. In view of increasing environmental contamination with the deterioration of soil health and due to use of chemical fertilizers for increasing crop productivity, present study was conducted to identify the bacterial isolate from rhizosphere of brinjal (Solanum melongena L.). The pure cultures of bacterial isolate from brinjal (Solanum melongena L.) were used to identify the bacteria. Identification of bacteria was done using reference strain viz., Bacillus polymyxa strain 10401 obtained from France. The brinjal bacterial isolate (BBI) was characterized by determining it's physiological and biochemical profile. API kits (API SYSTEMS, FRANCE) were used to detect the various sugars fermented by the BBI. Two API kits namely 20 B and 50 CHB were used. The physiological and biochemical profile of the isolated BBI was interpreted using 20B and 50 CHB reference tables supplied with API kits. The bacteria could not ferment urease but could ferment Arabinose, Mannitol, Amidon, Rhamnose, Galactose, sucrose fermentation, fructose fermentation, glycerol, melibiose, and sorbitol only after 48 hrs of incubation using 20B API kit. The results of the 50 CHB revealed that the isolated BBI could ferment Glycerol, L-Arabinose, D-Glucose, D-Fructose, D-Mannose, Dulcitol, Inositol, Mannitol, Amygdaline, Arbutin, Esculin, Salicin, cellobiose, Maltose, Melibiose, Saccharose, Trehalose and Xylitol at 24 hrs and 48 hrs after incubation. In conclusion, the physiological and biochemical profile ofBBI was found to tally with Bacillus polymyxa strain 10401 of France. For the first time the presence and identification of nitrogen fixing and phosphate solubilizing properties having bacteria was identified as Bacillus polymyxa on the rhizosphere of brinjal (Solanum Melongena L.).

KEYWORDS: *Brinjal Bacterial Isolate, Physiological Characters, Biochemical Characters, Solanum Melongena L. Bacillus Polymyxa*

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