

Some effects of soil born bacteria in plant nutrition

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It is a continuous challenge to minimize the use of chemicals in agriculture. Although such minimization may cause a significant decrease in the crop production, an advantage is seen in a less polluted environment. More attention should be paid to how we may substitute the chemicals effectively. One possible way lies in the intensification of soil life. The effects of non-pathogen soil born bacteria are: the increasing mobility and solubility of mineral nutrients, increased levels of CO₂ resulting in more intensive photosynthesis, and, due to the accelerated mineralization, the amounts of available nutrients increase. Environmental protection are getting more important for the agrarian, because of the purpose of sustainable agriculture. Bio-fertilizers containing less artificial compounds and plant growth promoting bacteria are good tools to reduce environmental damages and enhance the yield. From the point of view of dry matter production, which is very important in agronomy, photosynthetic pigments pool and the photosynthetic efficiency has a questionless role. Reduction in photosynthetic pigment concentrations and the amount of dry matter are indicative for the adverse circumstances. The plants developed two systems to tolerate the heavy metal stress. The „excluder” plants do not allow the heavy metals to get into the sensitive cell compartments. The second group of plants, the „includers”, take up the heavy metals, but these are translocated from the sensitive parts, or are secreted into the vacuole. The soil pH and the bacterial composition of rhizosphere modify the solubility, and availability of metals. The heavy metal tolerance has significant importance in agriculture and in forestry. The feasibility and effects of applying bacteria containing organic fertilizer in the laboratory and its effect on Al tolerance was examined.

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