

Chapter 8

Bacillus and Endomicrobiome: Biodiversity and Potential Applications in Agriculture



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Abstract Traditional methods of crop production or agricultural practices improve the soil fertility in earlier periods, whereas excess use of chemical fertilizers and pesticides leads to soil infertility, environmental pollution, and various health hazards to human being. In recent years, excessive amounts of synthetic fertilizers were used in agricultural field to overcome the scarcity of food for the increased human population. Similarly, a strong dependence on inorganic substances can lead to a decrease in biodiversity, insect resistance to insecticides, a decrease in soil fertility, and a negative impact on nontarget species. An alternative to traditional methods of using microorganisms can serve as a growing demand for new and safer methods to replace and to avoid overuse of synthetic fertilizer. In this book chapter, wide range of application of *Bacillus* and endomicrobiomes in agriculture and biodiversity aspects were reviewed and discussed.

Keywords Biodiversity · *Bacillus* · Endomicrobiomes · Inorganic · Organic

8.1 Introduction

In agriculture field, synthetic fertilizers have been overexploited to fulfil the food demand of the increasing population. The concentration levels of various insecticides are increasing in recent years to improve crop yield. In chemical industries, synthetic fertilizers are composed of some major chemicals like nitrogen,

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