

Biostimulants; An Effective Solution for Crops in Stressed Agricultural Lands

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In dry (arid and semi-arid) regions, including Egypt, agricultural soils suffer from many stresses such as drought, salinity, and heavy metals. These stresses are occurred due to Global warming, climate change and overuse of chemicals in agriculture causing irrigation water shortage and using the wastewaters in irrigation. These stresses have major effects on crop productions and may the stressed soils be failed to confer any agricultural products. Recently, an effective tool; biostimulants have been used as an efficient solution for this problem. Biostimulants applications for agricultural sector offer an opportunity to produce more foods and improve the capacity of the stressed agricultural soils to provide additional foods for future generations. Biostimulants are emerging as an effective alternative remedy to this disastrous status of affairs facing mankind, especially in dry regions.

What are the Biostimulants?

Biostimulants are substances and microorganisms, which have been reported to regulate growth of plants in several ways [1]. These biostimulants have positive effects that could be used to promote the commercial cultivation of crops under different stresses. An effective one of biostimulants, plant extracts such as moringa leaf and maize grain extracts that have been used for stressed plants, as seed soaking or foliar spray treatments, to overcome different abiotic stresses and increase plant productivity. These extracts have been proved to contain zeatin-type source, which is naturally derived from cytokinin, many mineral elements, phytohormones and vitamins, may potentially be natural growth biostimulants that is rich in antioxidants, some secondary forms of plant metabolites and osmoprotectants [2], which give pushes to plants to grow well under stress.

The biostimulants impacts

Research works have reported biostimulants ability to improve plant growth and crop quality characteristics, nutrient efficiency,

and plant tolerance to abiotic stresses through increasing the enzymatic and non-enzymatic antioxidant defense systems [2-4]. Another advantage of biostimulants is that they are cheap and affordable to the poor farmers.

Future Perspectives

By using these cheap biostimulants in different stressed agricultural lands, we may be able to cope with current and future famines in famine-prone areas.

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