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Moringa: A Miracle Tree For Sustainable Agriculture

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In agriculture chemical fertilizers used most frequently than organic fertilizers. This is mainly because their result is faster and plants absorb and utilize them quicker. This lead too many issues for environment and human health such as ground water contamination, soil erosion and degradation issues, chemical residue in food and other. Hence there is a need to protect environment by promoting organic agriculture. In this one of the option is to use of organic products to improve yield and quality of the agriculture produce. Moringa leaf extract as foliar spray is can be used (bio stimulant) to improve the quantity and quality of the produce.

Moringa leaves are source of vitamins, carotenoids, anti-oxidant substances and trace elements (Michaul et al., 2008) and rich in mineral elements P, Ca, K, Mg, Fe, Cu, Zn & Mn (Merwad, 2018) Moringa leaves good source of gibberellins, cytokinin, IAA and zeatin (Lathif and Mohamed, 2016). Unuigbe et al. (2015) noticed that, moringa leaves contain zeatin i.e. plant growth hormone. By using moringa leaf extract yields of soybean, maize and coffee can be improved by 25-30%. Moringa leaf extract is used as an effective plant growth hormone to enhance seed germination, improving yield and growth in plants (Phiri, 2010). Because of having antioxidant compounds like zeatin, ascorbic acid, phenolic flavonoids, vitamin E and minerals in moringa leaves, it can be used to enhance the metabolism of plants and overcoming plants from environmental stress (Lathif & Mohamed, 2016).

Manzor et al. (2015) the concentration of 5% leaf extract (MLE) and root extracts significantly increased growth and reduced aphid infestation in wheat crop, as well as improved leaf area index, total dry matter, growth rate, spike numbers, and the total yield. Moringa leaf extract is also used as a growth promotor in seed germination of many cereal crops like sorghum, rice, wheat & maize (Chattha et al., 2018). Mathew (2016) found that growth and yield of pepper increased with the spray of 5% concentration of moringa leaf extract. Higher protein content and fresh pod weight in pea plants was recorded with foliar application of 4% moringa leaf extract (Merwad, 2018). Moringa seed extract can be a useful source of antimicrobial property (Ali et al., 2004) Moringa leaf extract can be used as a safe and effective insecticide against weevil (Tshimenga et al., 2018). Foliar application with moringa leaf extract improves the immune system of plants against some parts and diseases (Makkar & Becker, 1996)

Moringa leaf, seed or root extract can be used as a part of organic farming to improve human health as well as ecological balance.

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