

ROLE OF BIOFERTILIZERS IN AGRICULTURE

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ABSTRACT

Bio fertilizers are made from the organic substances like plants and animal waste these are used to improve soil health without damaging the environment. There is various type of bio fertilizers are used in agriculture now a days due to the problems or health complications caused by the chemical fertilizers. These bio fertilizers are eco-friendly and less expensive to prepare.

Key Words: *Bio fertilizers, Nitrogen fixation, Crop productivity, Liquid biofertilizers.*

INTRODUCTION

In recent times the usage of bio fertilizers has been increased drastically due to the awareness in the people about the chemical fertilizers and the problems caused by the chemical fertilizers. The chemical fertilizers which are we used in agriculture practices improves crop yield however it also responsible for soil and water pollution. These chemical fertilizers cause severe damage to the microbes in the soil which are essential for the soil organic matter formation these microbes help into degradation of waste products and form organic matter in the soil which is essential for plant growth and development. By using more chemical fertilizers we disturbing the microbial growth in soil which eventually leads to the soil toxicity. By using of bio fertilizers, we can prevent the soil damage and improve the microbial growth in the soil and these bio fertilizers are easily degraded in soil which improve soil health and it didn't cause any problems by consuming the products which is obtained by the organic farming.

CONTEXT

In India, there are many farmers shifted to the organic farming by using bio fertilizers and the government also providing various funds for this organic farming. In various countries in the world, they also use bioinoculants in organic farming for better improvement. The bio fertilizers are generally made from plants and animal wastes however some of the bio fertilizers are prepared from the micro-organisms' bio fertilizers improve the nutrient up take mechanism in plants which is crucial for plant growth and development. These bio fertilizers are applied in as a dry matter or a liquid substance these bio fertilizers are mostly used due to low cost and doesn't cause any damage to the soil health. In some areas people apply animal waste directly into the farm to improve soil health. These bio fertilizers improve soil health, soil nutrition and also protects plants from soil borne pathogens. Bio fertilizers are classified into two different types as organic bio fertilizers and microbial bio fertilizers. Organic fertilizers are green manure, Farm yard manure, animal waste, plant waste etc.

Microbial bio fertilizers are prepared from various bacteria and fungi which are directly applied in the farm as a dust form or by spraying. Rhizobium, Azotobacter and Rhodospirillum are some of the microbial bio fertilizers.



IMPORTANCE AND BENEFITS OF BIOFERTILIZERS

Bio fertilizers had various uses these bio fertilizers improve soil fertility which is disrupted by using chemical fertilizers for many years. These bio fertilizers will improve water holding capacity in soil and improves yield.

- Bio fertilizers keep the soil nutrient values better than the chemical fertilizers.
- Plant development is improved easily due to use of natural bi-products.
- The soil and environment are safe and healthy due to the use of bio fertilizers.

Although there are many uses of biofertilizer there are some draw backs which reduces the use of biofertilizers in farm.

DRAWBACKS OF BIOFERTILIZERS

- Bio fertilizers doesn't able to produce rapid results like the chemical fertilizers.
- Biofertilizers decompose quickly in soil when it exposes to sun light.
- Most of the fares are unable to produce microbial bio fertilizers.

NITROGEN FIXATION AND CROP PRODUCTIVITY

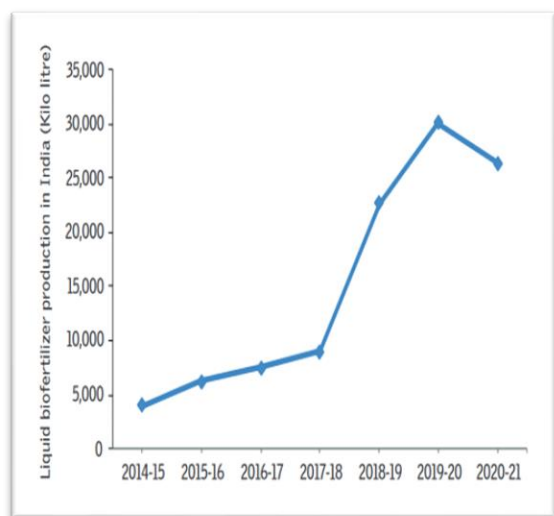
Nitrogen fixation is an important aspect in plant growth and development the nitron fixation usually done by the micro-organisms in the soil or it can be supplied manually however some plants like legumes has a different development of roots by performing symbiotic relationship with the rhizobium bacteria which helps in fixation of atmospheric nitrogen. Azotobacter is also a source for the atmospheric nitrogen. These are one of the important micro-organisms in bio fertilizers these are mostly cultured in now a day for the farming purpose to reduce the usage of chemical applications in the farm. These micro-organisms improve the soil nitrogen level rapidly by absorbing from the atmosphere since these micro-organisms are eco-friendly these don't cause any damage to environment and the humans. These micro-organisms help to improve the crop productivity by improving the N2 percentage in soil and it also reduced the cost of urea which is the major source for the nitrogen for the farmers.

LIQUID BIOFERTILIZERS

India produced about 26,442 kilolitres (kl) of liquid biofertilizers in 2020–21. This marked a growth of 552 per cent from the 4,055 kl of liquid biofertilizers production in 2014–15.

LIQUID-BIOFERTILIZERS PRODUCTION IN INDIA 2014-15 TO 2020-21

Due to the increase of organic farming in India the usage of biofertilizers increased rapidly and the government provides funds to the biofertilizer industries as well these actions will improve the usage of biofertilizers and reduce the usage of chemical fertilizers in India rapidly in future.



CONCLUSION

Biofertilizer are widely used in agriculture practices in recent time due the heavy usage of chemical fertilizers causes severe damage to the environment and soil which is also responsible for human health issues these bio fertilizers are useful to improve soil health without damaging the environment. Although there are some drawbacks are there with these biofertilizers like less life span, gourmand less knowledge but in future these drawbacks can be controlled by various practices. Due to the increase in the population in the world and recent pandemic times [covid] many people around the world change their diet. These agriculture products which are cultivated through organic farming will be a great source of nutrient diet. In India there are

many farmers are performing agriculture practices in organic way by using biofertilizers and pesticides. Sikkim is a state in India where the farmers only cultivate their crops using organic methods and reduced the chemical fertilizers usage to 0%. In future these kinds of events will happen and many people in the world will aware of organic products which is a major step toward the organic farming and usage of biofertilizers.

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