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Effect of chemicals on soil mycoflora in the

agricultural fields

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DESCRIPTION

Soil is defined as a weathered rock mantle, which contains organic matter as well as minerals and nutrients that can support plant growth. There are two main types of soil, mineral and organic. Organic soil contains at least 20% organic carbon. It is not mineral soil. Only 0.9% of the world's soil is organic (Gardiner and Miller, 2004). Soil is a complex and dynamically living natural body, and its biological activity is determined mainly by microorganisms, making it one of our most valuable resources. It is a non-uniform medium of solid, liquid and gas phases in its natural state and has different characteristics depending on the overall landscape and the depth of the profile.

Soil organisms are very numerous and very diverse. Many soil organisms are small and cannot be seen without enlargement. The smallest organisms such as bacteria, actinomycetes, fungi and algae are collectively called microflora. Since microorganisms are an important part of the soil food web, their biomass is considered a measure potential microbiological and of ecological functions. With the exception of some soil animals and fungi, most soil organisms are single cells. Bacteria are the most common microorganisms found in soil. They reach over 100 million (10^8) populations per gram (g⁻¹) of soil and probably 10⁶ 10⁴ represent to different species. Actinomycetes and fungi are the second most common microorganisms in soil, soils 10^6 - 10^7 and 10^4 - 10^6 g1, respectively (David et al., 2005). Microorganisms are the smallest implicit mechanism of soil and are used by both agronomists and soil practitioners. In cultivated agriculture, some soil organisms provide benefits to plant cultivation in the ecosystem.

The influence of chemical residues on mycoflora

Pesticides are extremely toxic to mammals and disrupt the functional dynamics of many microbial communities. Chlorine pesticides are classified according to their long-term persistence, toxicity and teratogenicity. Their residues systematically retain some of these residues, not just the cultivated soil to which they are applied, enter the food chain, infiltrate non-target organisms, and ultimately surface and groundwater. It also causes serious problems for crops that penetrate the level. As the penetration of agricultural wastewater, it causes health problems. They have various undesired effects on soil diversity and function. Pesticides affect microorganisms by reducing the number, biochemical activity, diversity of microorganisms and changing the structure of the microbial community (Martinez Toledo et al., 1998). Soil microorganisms such as bacteria, fungi, algae and nematodes can be impaired through their role as nitrifying agents in the decay of plants and other organics in the soil and in the event of impaired activity and play an important role in soil nutrition in the event of a failure in the quality of soil nutrients with serious consequences. The action of fungicides can also affect nitrogen conversion, such as nitrification and denitrification and can affect both the composition and activity of microbial communities. Microorganisms that live in the soil can be killed by chemicals that are applied directly to the soil or that have invaded the soil by air spraying or flushing the leaves. The death of microorganisms leads to the fact that the material of dead leaves is broken down into its organic and inorganic components, which reduces the uptake of this material into the soil structure and thus impairs soil fertility.

Affects

The ground is the most important place for biological interactions. The soil environment is disturbed by the indiscriminate use of pesticides, affecting plants and animals, including the microflora of the soil, affecting the physicochemical properties of the soil such as pH, salt and alkalinity, and ultimately soil failure brings down the fertility. The uncontrolled use of pesticides has created a myriad of dangers and dilemmas, including pollution. Air transfer of pesticides from soil to the atmosphere is well considered as it depends on temperature, soil organic matter, ambient relative humidity, and other interacting factors. Biological processes such as degradation, degradation, conversion, clay humus microbial interactions, microbial microbial interactions, and plant microbial interactions can be severely hampered by pesticides. Excessive use of these pesticides can affect the function of microorganisms present in the soil. Soil fertility depends the number and on type of microorganisms, so research is being conducted on the effects of pesticide application on soil. Edward (1973) gave following four effects of pesticides on living organisms in the soil:

- They may be directly toxic to animal in soil.
- They may affect the soil organisms genetically to produce population resistant to the pesticides.
- They may have sub-lethal effects that result in alterations in behavior or changes in metabolic or reproductive activity.
- They may be taken into bodies of soil flora or fauna and passes on to the other organisms.

The effects of pesticides on soil microorganisms depend not only on the type and concentration of pesticides, but also on physical, chemical and biochemical conditions. In general, microbial activity is highest in the upper 0-15 cm layer of soil. With frequent use of pesticides, they eventually enter the soil from the crop and accumulate in the upper layers of the soil, thereby interfering with the activity of microorganisms present in those layers. Mycoflora activity is essential for maintaining soil fertility. Residual pesticides affect microbial populations and microbial activity, thereby affecting the conversion of phytonutrients in the soil. It is widely recognized that the use of environmentally friendly bio-control agents such as T. harzianum is a clear opportunity for the future and can be successfully used in modern agriculture without compromising our precious ecosystem. Best soil and crop management practices are essential for achieving more sustainable agriculture, which also improves the growth, number, and activity of beneficial soil fungi, which in turn crop growth, yield and quality, can be improved.

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