

Ruben Dario Hoyos Echeverri

<https://www.linkedin.com/groups/68088>

Microorganisms in soil nutrition

soil microorganisms in plant nutrition

Microorganisms are the most important components of the soil. They are its living part and are responsible for the dynamics of transformation and development.

The diversity of microorganisms found in soil fraction meets key roles in the transformation of organic and inorganic components are incorporated. This allows us to understand its importance in plant nutrition upon transformation processes to elements that can be assimilated by the roots. The humification of organic matter is a purely microbiological process.

Soil microflora consists of bacteria, actinomycetes, fungi, algae, viruses and protozoa. Among the most important roles played in associations in transformation processes they are:

- Direct supply of nutrients (nitrogen fixation).
- Transformation of organic compounds that the plant cannot take inorganic forms if they can be assimilated (mineralization). Example: protein to amino acids and nitrates.
- Dissolving of inorganic compounds to facilitate absorption by plants. Example. Tricalcium phosphate with monocalcium phosphate.
- inorganic chemical changes due to oxidation and reduction processes. Example. Oxidation of sulfur to sulphate mineral. Oxidation of ammonia to nitrate nitrogen.
- Increase in plant root development which improves the assimilation of nutrients, field capacity and development.
- antagonistic reactions, parasitism and control of plant pathogens.
- Improving the physical properties of soil.

The increased activity of microorganisms is done from the soil surface to 20 cm deep. Colonies of microorganisms remain attached to the clay and humus particles (colloidal fraction) and the roots of plants that supply them organics which they feed and stimulate reproduction. These exudates are dependent on the good nutritional status of the plant and thus promote the growth of microorganisms that are important to her. Its activity and its development are associated with the availability of substrates to be transformed. The colonization of some microbial groups on the organic and inorganic fractions depend on the function being fulfilled in the transformation (breakdown of carbohydrates or proteins, ammonification, nitrification, oxidation, reduction, mineralization, solubilization). Therefore, while some microorganisms act on a substrate, others develop in the transformation products. When

they finish their function of substrate degradation, microbial groups were acting mainly decreased the most, reproduce or enter latency and to meet people of other processing functions in products of metabolism increases above microbial group. Each chemical process triggered by a microorganism is a step of decomposition of an organic or inorganic material. A larger amount of microorganisms in the soil allows better metabolic and enzymatic activity for good well-nourished plants capacity to produce. A fertile soil is one that contains an adequate supply of nutrients available to the plant or a microbial population that is permanently releasing nutrients to reach a balance allowing a good plant development.

-