**Application of Nanocompounds in Agricultural Fields Supports Plant Growth and Maintains Soil Health**

New technologies are being practiced to support agriculture production to feed such a large population worldwide. Application of chemical fertilizers negatively affects soil health and imposes heavy burden on farmer's economy. Recently some nanocompounds have found their way in agricultural practices under trial and marginal basis. Nanocompounds up to 100 nm size are presenting advantages in different sectors as these compounds show extraordinary properties like higher surface area, cation exchange capacity, antimicrobial character, adsorption, slow release of nutrients and complexation. Nanocompounds including nanozeolite, nanoclay, $TiO_2$, nanochitosan etc. are being used in agriculture. Nanocompounds in agriculture are aimed in particular to reduce the amount of sprayed chemical fertilizers, smart delivery of active ingredients, minimise nutrient losses in fertilisation and increase yields through optimised water and nutrient management and sustenance of soil health.

The main purpose of the present objective was to analyse soil health (biomass and microbial diversity and physicochemical parameters) based on conventional and molecular methods and performance of maize plants under the influence of nanochitosan in combination of plant growth promotory rhizobacteria.

**Advantages:**

1. Application of nanochitosan enhanced plant health parameters including plant height, leaf area and number of leaves.
2. Soil health assessment at different treatments also supported the beneficial effects of nanochitosan application in maize in agriculture field.
3. It presents a different approach towards development of sustainable agriculture system.
4. Nanochitosan plays an important role for the plant health and soil health.