

An Analysis of Nanoparticle Effects on Plant Growth and Development

Sachin Kushwah¹ and Dr. Sudhir Singh²

Research Scholar, Department of Agriculture¹

Research Guide, Department of Agriculture²

Sunrise University, Alwar, Rajasthan, India

Abstract: *Nanotechnology has developed into an exceptional instrument for the advancement of science and technology. In the agricultural sector, nanoparticles are employed. Many studies have been conducted to investigate the effects of nanoparticles on the growth and development of plants. Nanoparticles have both positive and negative effects on the growth and development of plants. Nanoparticles have the ability to regulate parasites and diseases, which in turn promotes the growth and development of plants, resulting in increased productivity and quality. Precision cultivation was facilitated by the site-specific and controlled delivery of inputs by nanoparticles. Researchers are striving to mitigate the adverse effects on the growth and development of plants. It is applicable at all stages, including processing, storage, and production, where it is used as inputs, such as nanofertilizers, nanoherbicides, and nanopesticides. Due to their diminutive size, these nanoparticles can effortlessly enter the plant through minute apertures. However, the public must embrace this nanotechnology. The public should be concerned about the safety of nanotechnology products. To ascertain the beneficial and detrimental impacts of nanoparticles on human health, plant growth and development, and animal health, additional research must be carried out.*

Keywords: Nanoparticles, Plant growth, Development, Environmental impact.