



Nanotechnology

(*Yashvardhan Negi)

Graphic Era Hill University, Uttarakhand

*Corresponding Author's email: shinigamiyashx666x@gmail.com

The journey of nanotechnology starts from the year, 1959, when “Richard Feynman” a renowned physicist discussed the concepts that seeded nanotechnology in his talk “There’s plenty of room at the bottom” but as history’s every idea, that proceeds the mind of every individual at that time, it goes largely unnoticed.

Then comes along “Norio Taniguchi” in 1974, who used the term ‘Nanotechnology’ for the first time. But during the late 1970’s, “Eric Dexter” began to develop an idea which helped nanotechnology to establish a well known name in the science community, without knowing, until he discovered the talk from the 1950’s of Richard Feynman, with which he used the term nanotechnology in his book “Engine’s of creation, ‘The coming era of nanotechnology’”, which later became Molecular Nanotechnology (MNT), which propose the idea of a nanoscale “assemble” which would be able to build a copy of itself and of other items or arbitrary complexity of atomic control.

But in the 1980’s, two major breakthroughs sparkled which were going to revolutionize the field of nanotechnology.

1. Invention of scanning tunneling microscope in 1981, which provided unprecedented developers “Gerd Binnig and Heinrich Rohrer at IBM Zurich Research Technology” which gave them a path of winning the prestigious “Noble Prize for physics” in 1986.
2. The work of “Harry Kato, Richard Smalley, and Robert Curl” who discovered Fullerenes (allotrope of Carbon) in 1985.

So, after studying the brief history of how nanotechnology came into being, we can say, that nanotechnology are the design, characterization, production, and application of structures, devices and system by controlling shape and size of nanometer’s.

But as a student of agriculture, we must ask ourselves that why are we reading this article about nanotechnology, is it even related to our field and the answer is “Yes”.

Nanotechnology can be exploited in the value chain of the entire agriculture production system. It is emerging as the sixth revolutionary technology in the current era.

1. Industrial revolution of the mid 1700’s,
2. Nuclear energy revolution of mid 1940’s,
3. Green revolution of the 1960’s,
4. Information technology revolution of 1980’s,
5. Biotechnology revolution of 1990’s.

But now it is emerging as a fast growing field of science which is being used over a wide range of scientific disciplines including agriculture.

There are some application of nanotechnology in agriculture which we are going to discuss:

1. Nano pesticides and nano fertilizers can be used to increase productivity of a crop.
2. Nano zeolites are used for improving soil quality.

3. Hydro-gels are used to stimulate crop growth using nanomaterials (SiO₂, TiO₂, and carbon nanotubes).
4. Nano sensor's provide smart monitoring by wireless communication device's.

There is so much more to nanotechnology then we have discussed, and more when you take a deep dive in the concept which is known as "Nanotechnology". I hope you enjoyed and become enlightened by the idea of "Nanotechnology".

I want to end tis article by the great words said by "Albert Einstein", "Wisdom is not the product of schooling but of the lifelong attempt to acquire it".