

# CDRSP Seminars 2023

## **Manoj K. Patel**

Manufacturing Science and Instrumentation (MSI) at CSIO-CSIR, India

### **Fundamentals of electrostatic spraying and technology landscape in Agro-Food and Health Industry**

#### Abstract:

The trans-disciplinary aspects of the embryonic field of electrostatic spraying have provided a major motivation to researchers for the development of novel techniques for spraying protective coatings to food and fruits for enhanced shelf-life and nutritional value, food packaging, protective agents for health and hygiene in addition to other applications of sprays to industrial, manufacturing, transportation and medical facilities and devices. It has become the motives behind the renewed curiosity in the usage of the electrostatics in liquid based spraying. This provides an efficient and uniform transportation of liquid based agents which avoids the wastage of natural resource with enhanced performance.

Edible coatings and incorporation of nutritional and active ingredients may improve food and fruit quality providing foodstuffs supplemented with extra flavor and a delicious, tantalizing and mouth-watering appearance. Electrostatic spray technology for coating of nutritional ingredients, antioxidants and edible films for food products and fruits preservation is a sustainable development strategy in this revolutionary technology era that has gained a lot of attention owing to its importance in enhancing the shelf-life of foods keeping its nutritional and sensory properties and confronting the massive population growth and resource challenges encountered by humanity. Although few research initiatives have been taken over the past years, the work largely remains in the nascent stage as far as field-scale technology development is concerned. These technological and life sustaining technologies will overall lead to improvement in the quality of life.