



# Geethanjali College of Engineering & Technology

(UGC Autonomous)

(Approved by AICTE, Affiliated to JNTUH, Accredited by NBA and NAAC with 'A+' Grade)

Cheeryal (V), Keesara (M), Medchal.Dist.-501 301



## Engineering Chemistry

Organic Farming and Organic Nanoparticles

By

Kothuri Sri Lalitha	-	24R11AO5ER
Lavudya Prashanthi	-	24R11AO5ET
Malisetti Bhuvana Sri	-	24R11AO5EU

Under the esteemed guidance of  
Ms.J.Bhargavi Laxmi





# **ORGANIC FARMING AND ORGANIC NANOPARTICLES**

# Introduction to Organic Farming

## What is Organic Farming?

- Organic farming is an agricultural method that focuses on growing crops and raising livestock in a way that works with nature, avoiding synthetic chemicals and genetically modified organisms (GMOs).
- The main goal is to promote sustainability, biodiversity, and soil health.



# PRINCIPLES OF ORGANIC FARMING

- Health: Nourishing soil, plants, animals, and humans.
- Ecology: Working with natural ecosystems.
- Fairness: Ethical treatment of farmers and consumers.
- Care: Protecting the environment for future generations.



# Benefits of Organic Farming

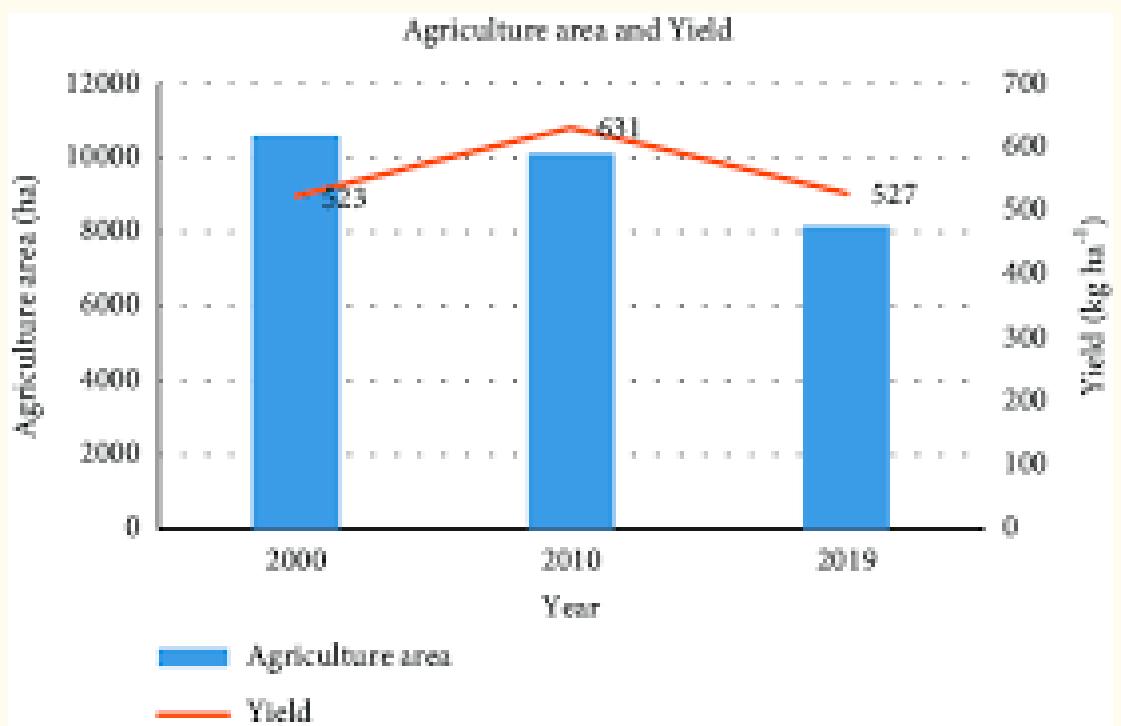
## Why Organic Farming Matters?

- Environmental: Reduces pollution, conserves water, enhances soil fertility.
- Health: Produces chemical-free, nutrient-rich food.
- Economic: Supports small farmers and local markets.



# Challenges of Organic Farming

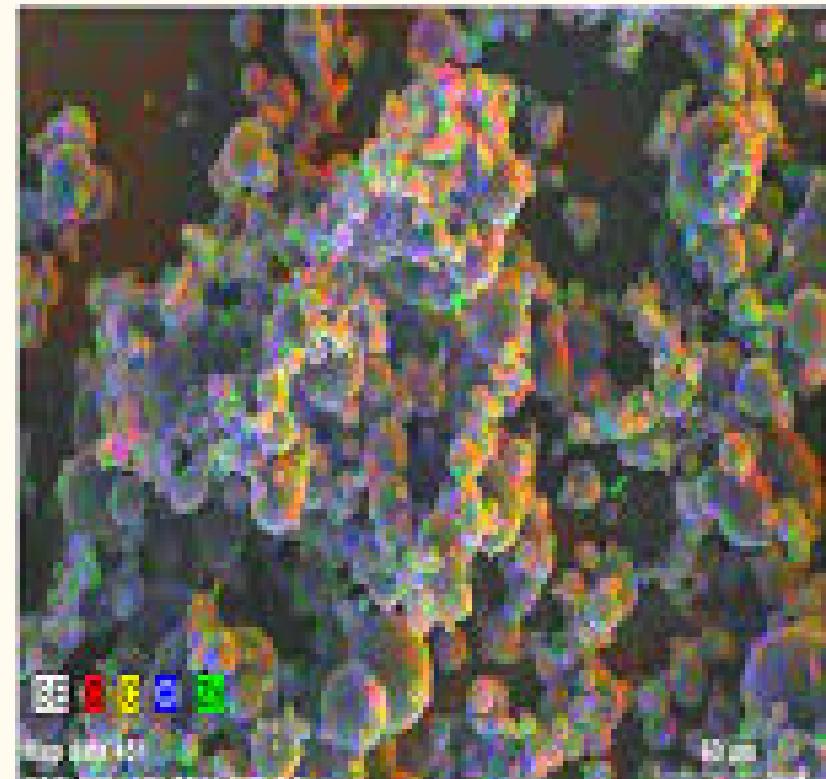
- Lower yields compared to conventional methods.
- Higher labor and cost requirements.
- Strict, costly certification deters small farmers and faces competition from cheaper conventional products.
- Relies on less effective natural methods, making pest and weed control labor-intensive.



# Introduction to Organic Nanoparticles

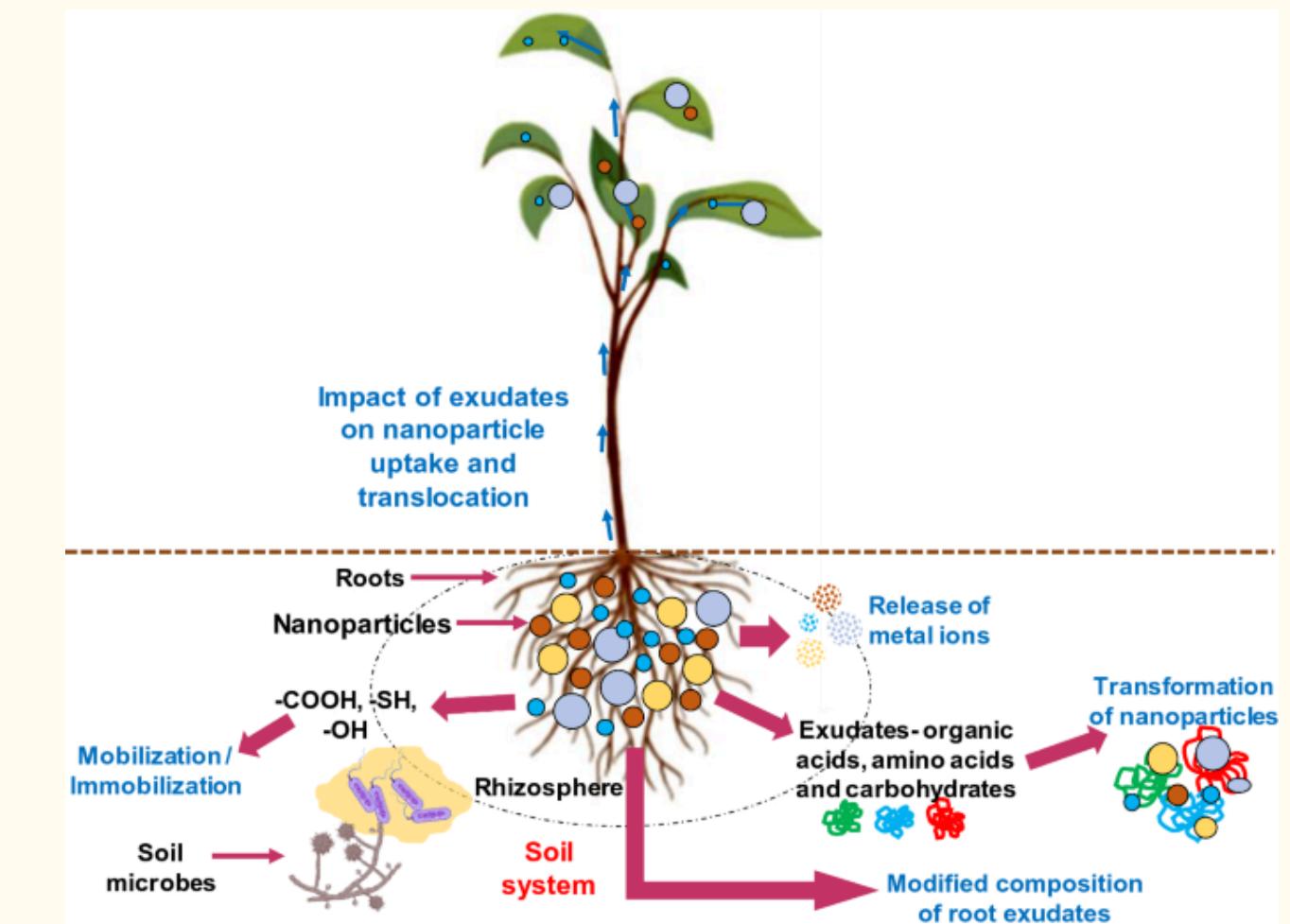
## What are Organic Nanoparticles?

- Tiny particles (1-100 nm) made from organic materials (e.g., lipids, proteins, polysaccharides).
- Role: Bridging nanotechnology and organic systems.
- Examples: Chitosan nanoparticles, cellulose-based nanoparticles.



# Organic Nanoparticles in Agriculture

- They help release nutrients slowly and steadily to plants, reducing waste.
- Used to target harmful pests without harming good insects or the environment.
- Coating seeds with nanoparticles boosts germination and early plant growth.
- Some nanoparticles protect crops from diseases naturally, without chemicals.



# Advantages of Organic Nanoparticles

- Eco-Friendly – They break down naturally and don't harm the environment.
- Made from natural materials, so they're safer for humans and animals.
- Reduce the need for harmful fertilizers and pesticides.
- Help plants grow faster and healthier.



# Challenges and Future of Organic Nanoparticles

- Making organic nanoparticles can be expensive right now.
- Many farmers don't know about their benefits or how to use them
- Some nanoparticles need special storage to stay effective.
- Scientists are working to make them cheaper and better.
- In the future, they'll be part of smart, eco-friendly farming methods.



# Conclusion

Organic farming promotes healthy, chemical-free food and protects the environment. When combined with organic nanomaterials, it becomes even more powerful –improving crop growth, reducing harmful inputs, and supporting sustainable agriculture. This blend of traditional practices with modern green technology offers a smart and eco-friendly future for farming.



**“A greener planet starts with smarter farming”**

Thank You

