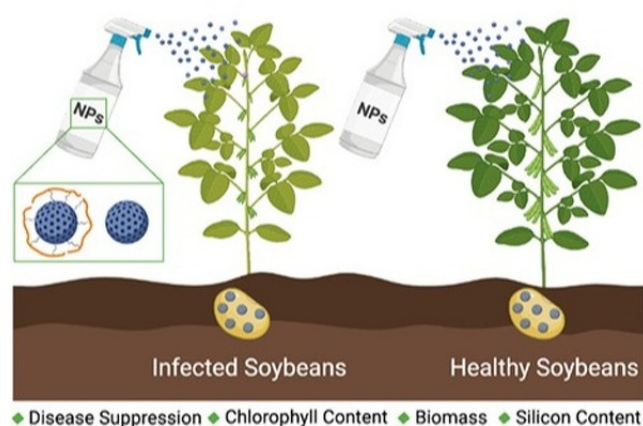




Chitosan-coated mesoporous silica nanoparticles for disease suppression in soybeans

A novel method of applying chitosan-coated silica nanoparticles to soybeans for disease suppression, improved health, and enhanced nutrition.



IP Status: US Patent Pending

Applications

- Disease management
- Crop biofortification

Technology Overview

Sudden Death Syndrome (SDS), caused by *Fusarium virguliforme*, is a major threat to soybean yields, and current management strategies like fungicides and crop rotation have shown limited success. Researchers at the University of Minnesota have developed a novel method for applying chitosan-coated mesoporous silica nanoparticles to soybeans, using either seed or foliar treatments to enhance disease resistance, plant health, and micronutrient content. This nanoparticle-based approach provides an environmentally friendly alternative to conventional treatments while also promoting sustainable agriculture and food security.

Phase of Development

TRL: 5-6

Validated in greenhouse and field trials

Desired Partnerships

This technology is now available for:

Technology ID

2024-181

Category

All Technologies
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Engineering & Physical
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Researchers

- [Christy Haynes, PhD](#) Distinguished McKnight University Professor, Department of Chemistry

References

1. Tana L. O'Keefe, Chaoyi Deng, Yi Wang, Sharmaka Mohamud, Andres Torres-Gómez, Beza Tuga, Cheng-Hsin Huang, Wilanyi R. Alvarez Reyes, Jason C. White, Christy L. Haynes(2024) , <https://pubs.acs.org/doi/10.1021/acsagscitech.4c00025>, ACS Agricultural Science & Technology, 4, 580–592