

AVVISO DI SEMINARIO

Il giorno 10/06/2026
alle ore 11:30 in Aula 22 - F

La prof.ssa Roselena Faez

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Terrà un seminario dal titolo

Engineering Polysaccharide-Based Fertilizers: From Spray Drying to Prolongated Nutrient Release

Modern agriculture must increase food production while reducing nutrient losses and environmental impacts associated with conventional fertilizers, where up to 50–70% of nutrients can be lost through leaching, volatilization, and runoff. Enhanced Efficiency Fertilizers (EEFs) offer a promising solution, but the development of sustainable and biodegradable delivery systems remains a key challenge. We present polysaccharide-based nutrient delivery platforms designed as environmentally friendly carriers for controlled nutrient release. Advanced spray-drying approaches using two-fluid and three-fluid nozzles enabled the production of microspheres and core-shell microcapsules with tailored structures and release profiles. Chemical modification of cellulose nanofibers (CNFs) via TEMPO-mediated oxidation and EPTMAC etherification was used to tune electrostatic interactions between carrier matrices and nutrient species, thereby enabling precise control of nutrient release behavior. To further prolong release, nutrient-loaded microparticles were incorporated into biodegradable polymer matrices via melt processing, producing macroscopic fertilizer tablets with enhanced performance. Field and soil studies demonstrated the agronomic effectiveness of the materials under realistic conditions.

Gli interessati sono cordialmente invitati a partecipare

Il Direttore
Prof. Fabio Bellina

Il Responsabile
Prof. Dario Puppi