



# **Plant nutrition courier**

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*20 years best bits of plant nutrition research*

**2025-03**

## ***Cost-competitive biosurfactants from agro-industrial residues 57***

***Oilseed rape profits from sulphur in seed glucosinolates 4***

***Novel strategy to prepare fertiliser coatings 8***

***Harsh criticism of mode of action of phosphate  
solubilisers 14***

***Recent plant nutrition patent publications 51***

- *water dispersible granule formulation for sparingly soluble copper salts*
- *nutrient particle suspo-emulsion as biodegradable coating*
- *inclusion complex increases thermal stability of inhibitors*
- *biosurfactants as wetting agents to improve irrigation*





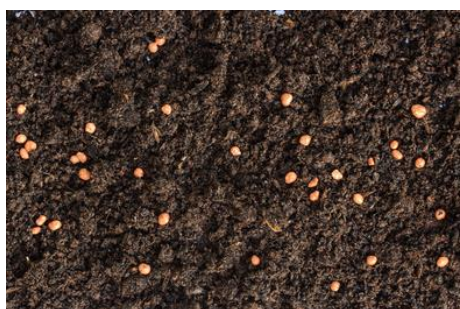
## Cost-competitive biosurfactants from agro-industrial residues 57

Biosurfactant extracts from corn steep liquor improve the solubility and suspensibility of water-insoluble salts. Spanish chemical engineers are exploring this residual stream as a source of cost-competitive adjuvants.



## Oilseed rape profits from sulphur in seed glucosinolates 4

Seed glucosinolates are an important source of sulphur for the early growth of oilseed rape seedlings on soils low in sulphur.



## Novel strategy to prepare fertiliser coatings 9



## Harsh criticism of mode of action of phosphate solubilisers 14

## Arable farming / Potato nutrition

- 4 Oilseed rape profits from sulphur in seed glucosinolates
- 5 Adequate spring nitrogen supply is sufficient for winter barley production
- 5 Spraying potassium against heat stress in wheat
- 5 Molybdenum favours nitrate uptake by maize
- 5 Winter wheat canopy absorbs ammonia emitted from soil surface
- 5 Ammonium stimulates uptake of soil-applied selenium in maize
- 5 Steel slag silicate fertiliser suppresses grain cracking in brewer's rice
- 5 Special issue on denitrification in agricultural soils
- 6 Maize and sugar beet benefit differently from preceding cover crops
- 7 Publications about potato nutrition research

## Fruits, vegetables and ornamentals

- 6 Spinach benefits from combination of boron and boron-complexing metabolites
- 6 Preharvest boron spraying limits frost impact on broccoli quality
- 6 Seed priming to enhance iodine content of tomato
- 6 Several transporter genes improve selenium uptake
- 6 A little iodine increases lettuce yield
- 6 Calcium source matters for vase life of cut roses

## Fertilisers

- 8 Novel strategy to prepare fertiliser coatings
- 8 Biodegradable coating for granular urea
- 8 Urea synthesis by ball milling ammonia water and carbon dioxide
- 8 Mechanochemical synthesis of slow-release molybdenum-zinc fertilisers
- 9 Slow-release molybdenum fertiliser
- 9 Potassium tripolyphosphate suited as fertiliser
- 9 Brushite is suitable as a phosphate fertiliser
- 9 Siderophore-based zinc chelate
- 9 Publications about new, experimental and potential fertiliser formulations

## Beneficial soil microbes

- 14 Harsh criticism of mode of action of phosphate solubilisers
- 14 Commercial mycorrhizal inoculants often fall short
- 14 Biobased polymer seed coating protects plant growth-promoting rhizobacteria
- 14 Sulphur biofertilizer

## Plant nutrition patents

- 51 Recent plant nutrition patent publications

## Plant and soil analytics

- 56 Machine learning used to improve interpretation of nutrient levels in leaf samples

## Formulation research

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- 59 Generation of surfactant-free oil-in-water nanoemulsions using nanopore membrane and ultrasound
- 59 Assessing the viscosity inside oil droplets in nanoemulsions
- 60 Solid state encapsulation of active ingredients
- 60 Melt suspension technique for low-melting active ingredients
- 60 Some amine-based formulation inerts are a significant source of carcinogenic nitrosamine precursors
- 60 Low risk of viroid spread with oils from citrus fruit peels
- 61 Publications about formulation research

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### Formulation research

### News and insights

In this anniversary year, Plant nutrition *courier* magazine pays extra attention to formulating (foliar) fertilisers. This issue therefore contains six pages of news and insights into formulation research in general and a comprehensive overview of recently published studies (page 57-62).

Fertiliser companies



Analytical services



Fertiliser research



Liquid fertiliser applicators



Soil services



Agricultural cooperatives

(Dutch - with international network of subsidiaries)



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## Colophon

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