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Formulation of Biologicals
Micro- & Nanoencapsulation, Coating, Spraying & Drying
Universities, SMEs



FH Bielefeld
University of
Applied Sciences

Formulation Science

Formulation science covers the conversion of active ingredients into applicable forms. Benefits of formulation are superior efficiency, handling and shelf life, just as controlled release.

Formulation techniques in the biotech industry facilitate the preparation of cultivated biomass for applications in soil, water or air. Likewise, biocatalysts can be immobilized for usage in bioreactors or biosensors. Besides, additives can be introduced to further efficiency and protection of the active ingredient.

The University of Applied Sciences Bielefeld has a broad knowledge of fermentation, polymers, formulation and drying.

The main focus of our work is the development of materials, methods and production processes to prepare formulations, such as:

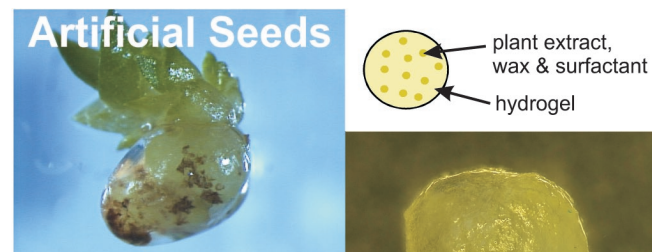
- Beads, hollow beads (microcapsules, core-shell particles)
- Coated beads and carrier materials
- Sprays (emulsions, suspensions and wettable powders)

Polymers used in such systems exhibit a wide range of properties, allowing a specific design of the finished product. Besides additives are included, to further protect or boost

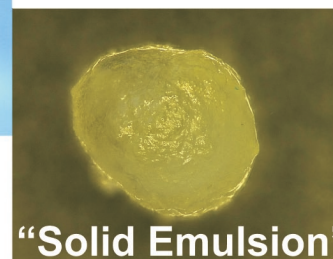
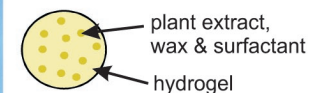
the efficiency of the active ingredient. Formulations provide benefits to a wide range of active ingredients, e.g.:

- Agrobiologicals (biopesticides, attractants, biofertilizers, somatic embryos, ...)
- Agrochemicals (organic fertilizers, ...)
- Plant extracts (photopigments, dyes, flavors, ...)
- Nutraceuticals (dietary supplements, vitamins, ...)
- Microorganisms sensitive to drying, e.g. probiotics
- Biocatalysts

Artificial Seeds



somatic embryo
with nutrients



"Solid Emulsion"

Nutrient Depot



H. rhossiliensis
with yeast
sulfoethylcellulose/PDADMAC
or sulfoethylcellulose/chitosan

What we are looking for at BIOTECHNICA

Our group is looking for cooperation partners to develop innovative formulations of biologicals.



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