

NanoCosPha: Innovative Technologies for Personal Care

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NanoCosPha is a new technological platform born in collaboration with Regione Lombardia. The main challenge of this facility is to become a support for companies covering the entire production process, starting from the selection of lead compounds, natural or synthetic molecules, to the development of pharmaceutical or cosmetics final products.

The main idea of this project is to share our skills and exploit the academic technologies in service and support of cosmetic and pharma companies both at a local and international level.

This infrastructure includes seven different laboratories, mostly related to cosmetic field, focusing on different projects such as bioprospecting for the extraction and purification of bioactive molecules from plants, facilities for the production and characterization of solid and semisolid cosmetic formulation.

To do that, NanoCosPha platform is fully equipped with advanced instruments, covering the entire workflow: from the extraction and development of green ingredients to the production and characterization of solid and semisolid products and to the validation of activities through *in vitro* and *in vivo* experiments. Among extraction methods we have supercritical CO₂ in addition to conventional methods such as green solvents and spray dry. For the compounds characterization we can perform FT-IR and UV-Vis spectroscopy, electron microscopies (SEM and TEM). We produce solid formulations by using tablet press and tablet coating pan and characterize them with dissolution and disintegration apparatus; emulsifier, rheometer, texture analyzer and Franz cell are used for the production and characterization of semisolid products.

Currently we are working on sustainable compounds deriving from natural sources as potential active ingredients and excipients for solid and semisolid cosmetic formulations. We are optimizing standard protocols for the exploitation of a customized 3D printer based on binder jetting technology for the solid formulations.

In this contest, the aim of NanoCosPha is to act as a unique contact for companies, from basic research to the formulation of new products. Meanwhile, it provides innovative technologies and technicians to promote research in cosmetic and pharmaceutical field. The over mentioned innovation of this platform includes not only the use of advanced instruments but also the technologies recently introduced in this field.

Keywords

Research, Multidisciplinary, Sustainability, Technology transfer, Innovation, Skin care