



University of Naples Federico II

Department of Pharmacy

PhD course

Nutraceuticals, Functional Foods and Human Health

DIPARTIMENTO di FARMACIA



XXXLX cycle

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Sprouts and Microgreens as innovative sources of phytocomplexes for the formulation of nutraceuticals indicated for the regulation of genitourinary system and skin appendage functionality

The terms “sprout” and “microgreen” indicate plants harvested with and without roots, respectively, a few days after germination. These plants offer, as their main advantage, a higher concentration (up to 20-30 times) of active ingredients compared to the adult plant, for the same dry weight. This richness in bioactive substances depends on the need of the newborn plant to defend itself from the attack of external agents, in a moment of great physiological vulnerability. Cultipharm srl industry grows microgreens in containers on vertical platforms ("vertical farm"), exploiting strictly controlled conditions of artificial lighting, temperature, humidity and nutrients. These conditions make it possible to standardize the title of active ingredients, offering the pharmaceutical industry phytocomplexes with a qualitative-quantitative profile of active ingredients that is always reproducible and controlled. Added to this is the high level of safety of the phytocomplexes (total absence of potentially toxic substances of environmental origin, both natural and anthropic) and the optimal eco-sustainability (vertical crops, in very limited spaces, in hydroponics, which allows to reduce considerably the use of water resources).

This project aims to develop, in collaboration with the industrial partner, production of sprouts and microgreens whose plant portions are present in Annex 1 of the Ministerial Decree 10th August 2018 "Regulations for the use of plant substances and preparations in food supplements" as updated with Ministerial Decree 9th January 2019, with particular reference to those botanicals whose physiological effects on the functionality of the genitourinary tract and skin appendages are described.