

## **Microgreens the trend of food: topping bioactive compounds and attractive colors to everyday meal**

**El-Nakhel C., Roupheal Y.**

christophe.elnakhel@unina.it

*Department of Agricultural Sciences, University of Naples Federico II, 80055 Portici, Italy*

Health-boosting vegetables characterized with gastronomic pleasure is exactly the quest of modern times due to the benefits that humans can assume from the phytochemicals present in plants. Vegetables food are rich in biologically active specialized metabolites such as phenolic compounds, anthocyanins, carotenoids, chlorophylls and more. These latter are responsible for the pigmentation of plants in addition to the biochemical diversity. Microgreens are an example of such vegetable foods with vivid colors and intense flavors, therefore nowadays they are considered a fresh and trendy crop, naturally biofortified with antioxidants, nutrients and macro- and micro-minerals, overcoming their mature counterparts and accumulating less anti-nutrients such nitrate. Microgreens as super food is unique by its sensory attributes, decorating meals not only visually but also by adding a myriad of tastes: sweetness, astringency, bitterness, heat, and sourness, etc...Therefore it is used by chefs worldwide to top up soups, sandwiches, drinks, meat and fish. Species belonging to several botanical families are adopted for microgreens plantation such as: *Potulacaceae*, *polygonaceae*, *Poaceae*, *Oxalidaceae*, *Lamiaceae*, *Fabaceae*, *Curcubitaceae*, *Brassicaceae*, *Asteraceae*, *Apiaceae*, *Amaranthaceae* and *Amarillydaceae*. The specialized metabolites in microgreens are dictated majorily by the genetic material that rules the composition and the concentration. Nonetheless, this content can be modulated by pre-harvest factors such as environmental factors, conditions of cultivation and cultural practices, of which we mention nutrient eustress and light factor. Indeed, light as a crucial environmental factor along temperature, is an important factor for setting growth and nutritional quality of microgreens. More in depth, it is the spectral quality on the expense of light intensity, which exhibit more detailed responses with reference to functional quality. In contrast, growing microgreens without nutrient supplementation proved to be feasible and able to elicit the accumulation of additional bioactive molecules. Moreover, microgreens can be grown on a multitude of substrates like peat-based substrate, jute, coco fibers, agave fibers, capillary mat, and even in floating. In addition their production offers lot of advantages, since they have a short cultivation cycle, can be produced all-year long, requires minimum of expertise, suits indoor farming and is characterized by a minor footprint regarding water, fertilizers and time consumption. Finally, as innovative as it is, you can always be overwhelmed with new possibilities of special microgreens species that you might encounter in your meal, reminding us how rich and unique mother-nature is, but nevertheless how innovative growers are.

**Keywords:** vegetable confetti; emerging food; specialized metabolites; post-harvest factors.