

AGROSYM

BOOK OF ABSTRACTS



*XVI International Scientific Agriculture Symposium
"Agrosym 2025"*
Jahorina, October 2-5, 2025

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SPROUTS AS FUNCTIONAL FOODS: A NATURAL RESERVOIR OF BIOACTIVE COMPOUNDS

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Abstract

Sprouts are increasingly recognized as nutrient-dense foods, rich in vitamins, minerals, fiber, and diverse bioactive compounds. The germination process triggers biochemical changes that often enhance antioxidant and phytochemical content compared to unsprouted seeds. This improvement positions sprouts as valuable components of functional foods designed to support health and reduce the risk of chronic diseases. This study investigated the bioactive content and antioxidant potential of five commonly consumed sprouts—alfalfa, garlic, radish, mung bean, and beetroot—while examining the influence of two drying methods: freeze-drying and conventional hot-air drying. Analyses included dry matter content, total phenolics, hydroxycinnamic acids, flavonols, flavonoids, and polymeric proanthocyanidins, along with antioxidant capacity assessed using FRAP (ferric reducing antioxidant power) and ABTS (2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid)) assays. Results showed that freeze-drying was significantly more effective in preserving bioactive compounds, while conventional drying led to considerable reductions in some cases. Among the tested varieties, radish and beetroot sprouts exhibited the highest antioxidant activity, highlighting their promise as functional food ingredients. Importantly, each sprout type responded uniquely to the drying method, underscoring the necessity of aligning processing techniques with the specific characteristics of each botanical source. These findings highlight the critical role of both sprout selection and processing strategy in maintaining nutritional and functional quality. The study provides valuable insights for optimizing sprout-based products in the functional food sector and reinforces the relevance of sprouts as affordable, plant-based sources of antioxidants in health-focused diets. With proper handling, sprouts can contribute significantly to improved dietary quality and preventive nutrition.

Keywords: *Sprouts, Bioactive compounds, Antioxidant capacity, Drying methods, Functional foods.*