



## EVALUATION OF SOME NUTRITIONAL PARAMETERS OF NETTLE POWDER UNDER DIFFERENT DRYING METHODS

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**Abstract:** This research investigated the nutritional composition of powdered nettle leaves, specifically examining how different drying techniques affect the final product. The study focused on wild nettle (*Urtica dioica* L.) leaves collected from natural growth areas. Three distinct drying methods were applied: shade drying (SHD), sun drying (SD), and oven drying (OD). The researchers then analyzed the resulting nettle leaf powder to determine the levels of moisture, ash, protein, fiber, and carbohydrates in each sample. The findings of this experiment demonstrated that nettle leaf powder, regardless of the drying method employed, is a rich source of essential nutrients. Furthermore, the research indicated that processing fresh nettle leaves into powder significantly enhances the concentration of these nutritional compounds compared to their levels in the original fresh leaves.

### • Introduction

Stinging nettle leaves contain important amounts of biologically significant classes of compounds: fatty acids, carotenoids, polyphenolic compounds and minerals (especially Na, K, Ca, Mg, Fe, Mn and Zn). Chlorophyll, carotenoids, vitamins, proteins, lipids, carbohydrates, organic acids, minerals and trace elements are abundant in nettle leaves.

### • Material and method

#### Preparation of nettle powder

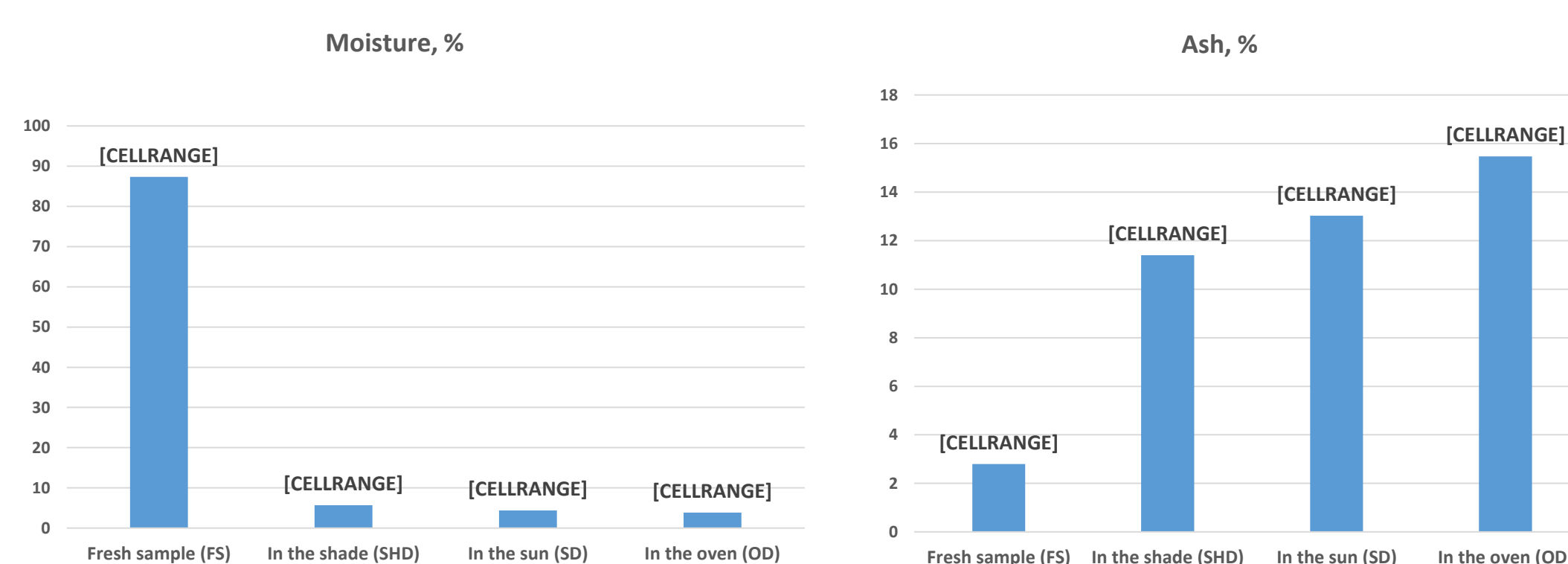
Nettle powder was prepared from young leaves of stinging nettle (*Urtica dioica*) taken from the spontaneous flora of three plain areas in Timis county (Romania). After the removal of mechanical impurities, the leaves were washed under running tap water and dried using three methods: in the shade, in sunlight, and in an oven at 55°C, until a crispy texture was obtained. The dried leaves were then ground using a coffee grinder, resulting in a powder with a granulation similar to that of milk powder.



### • Results and discussions

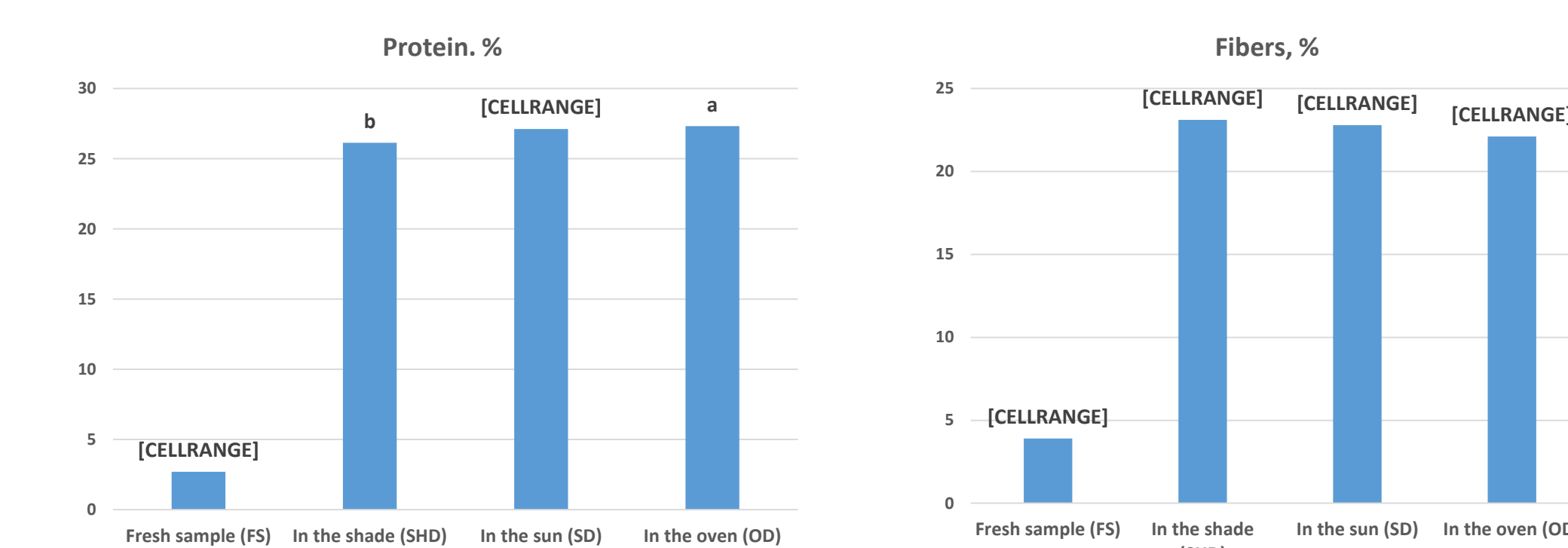
The Duncan test for multiple comparisons revealed that the mean value of moisture was significantly different with respect to drying techniques between the following pairs: OD and FS, SD and FS, SHD and FS, SHD and OD, and SHD and SD.

Duncan test for multiple comparisons found that the mean value of ash was significantly different with respect to drying techniques between the following pairs: OD and FS; SD and FS; SHD and FS; SD and OD; SHD and OD; SHD and SD.



The Duncan test for multiple comparisons revealed that the mean value of protein was significantly different with respect to the following drying techniques: OD and FS, SD and FS, SHD and FS, and SHD and OD.

Duncan test for multiple comparisons found that the mean value of fiber was significantly different with respect to drying techniques: OD and FS; SD and FS; SHD and FS; SHD and OD.



Duncan test for multiple comparisons found that the mean value of carbohydrates was significantly different with respect to drying techniques: OD and FS; SD and FS; SHD and FS; SHD and OD; SHD and SD.

### • Conclusions

The concentrations of nutrients in nettle powder are significantly affected by the drying method used—shade, sun, or oven. While nutrient retention depends on the chemical nature of each compound, oven drying best preserves minerals, proteins, and dry matter, whereas shade drying results in higher fiber and carbohydrate content. Overall, nettle powder is a valuable nutritional source, with its composition strongly influenced by the drying technique.