

MINERAL CONTENT AFTER OSMOTIC TREATMENT OF NETTLE LEAVES (*URTICA DIOICA* L.)

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Abstract

Osmotic treatment (OT) is an important method for preserving food, which involves partial water removal from samples immersed in hypertonic solutions. This study aimed to investigate the effects of OT in two different solutions on nettle leaves' mineral content.

Nettle leaves were dehydrated in sugar beet molasses (80%) and an aqueous solution of sodium chloride and sucrose, at 35 °C and 50 °C for 30, 60 and 90 min. Mineral content (Ca, Mg, Na, K, Fe, Cu, Zn, Mn and Co) was determined in fresh and dehydrated leaves. The basic chemical composition of nettle leaves before and after the OT was determined based on the following methods: Content of Fe, Cu and Zn was determined by the method FINSLab-5.4-3M-004/13; Determination of: Pb, Cd, As, Zn, Cu, Fe, Sn, and Cr in food by atomic method absorption spectrometry (AAS); Content of: Ca, K, Mg, Na, Mn, and Co in fresh and OT samples was determined using the standard SRPS EN ISO 6869: 2008, Animal feed, and determination of: Ca, Mg, Mn, K, Na and Co contents in food by atomic absorption spectrometry (AAS).

There was a slight decrease in mineral content in the samples dehydrated in a clear solution, compared to molasses, where all samples showed an increase in monitored minerals after OT. The highest values of monitored minerals were achieved by OT of nettle leaves in molasses solution, after 90 minutes, at 50 °C, especially Fe (from 30.989 ± 0.062 mg/100g i.s. to 98.627 ± 1.674 mg/100g i.s.) and K (from 50.752 ± 1.226 mg/100g i.s. to 97.903 ± 0.905 mg/100g i.s.). After the treatment, the content of Na in all samples was increased.

It can be concluded that the content of Ca, Mg, K, Fe, Cu, Zn, Mn and Co increased in nettle leaves dehydrated in sugar beet molasses, while in the samples dehydrated in NaCl and sucrose solution opposite trend was observed.

Key words: *Osmotic treatment, Nettle leaves, Sugar beet molasses, Mineral content.*