

## Determination of essential and toxic elements, ascorbic acid content and color of different leaves in two cabbage varieties

Ana LEAHU,\* Cristina GHINEA, Mircea-Adrian OROIAN, and Cristina DAMIAN

*Stefan cel Mare University of Suceava, Romania, Faculty of Food Engineering, 13<sup>th</sup> University Street, Suceava, Romania*

**Abstract.** The main goal of this paper was to evaluate total macro- and microelement contents of different cabbage leaves of two varieties of cabbage (*Brassica oleracea* var. *capitata* f. *alba* and *Brassica oleracea* var. *capitata* f. *rubra*) and to determine the ascorbic acid content and color parameters ( $L^*$ ,  $a^*$ ,  $b^*$  and  $-\Delta E$ ). Also, the anthocyanins content of *Brassica oleracea* var. *capitata* f. *rubra* was investigated. The highest mean contribution of elemental interactions regarding total macroelements in white cabbage leaves from inside (14-16 leaf), was observed for calcium and selenium, whereas the lowest was found for heavy metals, nickel, cadmium, and cobalt. The total contents of calcium and selenium in red cabbage leaves from inside (14-16 leaf) were highest. Results showed that the red-purple hue is more pronounced outside of the red cabbage than inside and it was also found that there are losses of yellowish hues for white cabbage from the outer leaves to the inner ones. Regarding the content of anthocyanins, it was obtained a value of 65.124 mg/100 g fresh weigh for outer leaves of red cabbage. Our results indicated that ascorbic acid content of red cabbage is approximately 3 times higher than in the white cabbage.

**Keywords:** cabbage leaves, heavy metals, ascorbic acid, color parameters, total anthocyanins content.

\*Corresponding author. *E-mail address:* analeahu@gmail.com (Ana Leahu)