

## SCREENING ON ANTIOXIDANT PROPERTIES OF ETHANOLIC EXTRACTS OF *CAPSICUM* SPECIES BY FRAP ASSAY AND PROSPECTIVE VOLTAMMETRIC METHODS

Viktorija Maksimova<sup>1</sup>, Marija Atanasova<sup>1</sup>, Liljana Koleva Gudeva<sup>2</sup>, Tatjana Ruskovska<sup>1</sup>, Rubin Gulaboski<sup>1</sup>

<sup>1</sup> University "Goce Delcev", Faculty of Medical Sciences, Krste Misirkov bb, POB 201, Stip, R. Macedonia, corresponding author: marija.atanasova@ugd.edu.mk

<sup>2</sup> University "Goce Delcev", Faculty of Agriculture, Krste Misirkov bb, POB 201, Stip, R. Macedonia

The genus *Capsicum* (pepper) comprises a large number of wild and cultivated species. These plants are grown all over the world, and there are many species from this genus cultivated in R. of Macedonia. The fruits are an excellent source of health-related compounds, such as ascorbic acid (vitamin C), carotenoids (provitamin A), tocopherols (vitamin E), flavonoids and capsaicinoids (mainly capsaicin), which are showing high antioxidative properties, according to the literature.

The total antioxidant capacity of ethanolic extracts of 4 different species of *Capsicum annuum*, which have long been used in herbal medicine for the treatment of rheumatic and other local pain, has been investigated. The total antioxidant potential conferred by all hydrogen donating antioxidants present in these extracts has been assessed by the FRAP (Ferric reducing antioxidant power) assay and the relative order of antioxidant potential has been established. Spectrophotometry has been used for the quantification of the capsaicin present in the extracts. The spectrometry results were related to the results obtained using the FRAP assay. Results from FRAP assay have shown that the total antioxidant properties of hot species of *Capsicum* in range of (32,74 to 84,82  $\mu\text{mol/L FeSO}_4$ ) are proportionally following the concentration of capsaicin in the same extracts, but mild variety of peppers is not showing this correlation. This can be due to the higher content of other secondary metabolites present in the mild type of peppers. In order to confirm these results and to choose better and easier method for screening of total antioxidant potential this examination can be made by voltammetry techniques, and this is planned as further investigation. This antioxidative potential of capsaicin can be used as additional positive effect on the cells membrane, especially on the cells where TRPV1 receptor is expressed and capsaicin is showing its pharmacological activity.

Key words: antioxidative properties, *Capsicum*, capsaicin, FRAP, voltammetry