

Total phenolic content and free radical scavenging activity of extracts from selected plants of ukrainian flora: potential for application in functional food technologies

Ivanova D. Viktoriia¹, Arsenieva Y. Larisa

National University of Food Technologies, Vladimirskaya Str., 68, Kiev 01033, Ukraine, ¹victdzani@ukr.net

Last years the search for new sources of natural antioxidants, especially of plant origin, has been increased. Their presence in functional foods may provide a physiological effect on the human organism, helps to reduce the risk of certain diseases (eg inflammatory, cardiovascular, tumor). Phenolic compounds are an important class of secondary plant metabolites and potent free radical scavengers because they can donate their alcoholic hydrogen atom to free radicals.

Raw materials of some medical plants were been used in the study (leaves of *Fragaria vesca*, *Rubus idaeus*, *Ribes nigrum*, shoots of *Vaccinium myrtillus*, *Thymus serpyllum*, flowers of *Sambucus nigrae*, *Tilia cordata*, and fruits of *Crataegus laevigata*). The phytocompositions of these plants were developed (№1 - from plant leaves, №2 – from shoots, №3 – from fruits, №4 – from flowers); aqueous and ethanolic extracts were prepared. Total phenolic content of extracts was determined by Folin-Ciocalteu assay, free radical scavenging activity was studied using 1,1-diphenyl-2-2-picrylhydrazyl (DPPH) assay in order to gauge these potential as a functional food ingredients.

The results showed that extracts from plant's leaves contained the highest values of total phenolics and total flavonoids. They exhibited the highest percentage of free radical scavenging (91.3%). DPPH assay showed that IC₅₀ of water extract from composition №1 (8.79 µg/ml) was the lowest. Relationship between total phenolics content and free radical scavenging activity was also demonstrated. The results indicate that extracts of these plants can be used is for the development of new functional ingredients with antioxidant properties.

KEY WORDS: *extracts, antioxidants, phenolic compounds, DPPH, unconventional plant raw materials*