

Carotenoids Content in Plant Organs of *Taraxacum Officinale* (L.) Species from Two Romanian Regions

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Abstract. Carotenoids are pigments that occur naturally in bacteria, algae, fungi and plants and give them their orange or red colour. The most important carotenoids that have beneficial effects on human health are beta-carotene, lutein, astaxanthin, lycopene and zeaxanthin. The main advantage of carotenoids lies in their antioxidant potential, the role of protecting the body's cells from damage by unstable oxygen molecules. The present paper presents the comparative content of carotenoid-type bioactive compounds present in the hydroalcoholic extracts obtained from different plant organs (roots, leaves and flowers) of the species *Taraxacum officinale* (L.), dandelion. The plant product was collected from the spontaneous flora, the southern area of Dobrogea, Constanța county and from the eastern area of Transylvania, Harghita county, in May 2022. The obtained hydroalcoholic extracts of 10% concentration in 50% ethanol and respectively 70% ethanol, using the cold maceration method, in the dark, for 14 days, were analysed by UV-Vis spectrophotometry to determine the total content of carotenoids, beta-carotene and lutein. Total carotenoids content was higher in ethanolic extracts of roots and flowers of plants collected from the southern area of Dobrogea, and for the leaves the content of total carotenoids was higher in the ethanolic extracts of the plants collected from the eastern area of Transylvania. The differential distribution observed in terms of the carotenoids content present in the various plant organs of the species *Taraxacum officinale* (L.), may be due to the influence of the climate and the type of soil characteristic of the two studied areas. Enriching the database regarding the concentration of analysed carotenoid-type bioactive principles can contribute to the development and testing of

hypotheses about the therapeutic potential of this valuable component of the Romanian spontaneous flora.

Key words: *Taraxacum officinale* (L.), total carotenoids, beta-carotene, lutein.

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1.Introduction

Carotenoid pigments are among the most important pigments and have many applications in various cosmetics, hygiene industries and biotechnology, pharma and agro food industries; the leading interest for humans is their nutritional value. These pigments are produced by plants, animals, algae, fungi and microorganisms. Until 2004 more than 700 carotenoids have been reported (Britton et al., 2004). Chemically carotenoid pigments are C₄₀ tetraterpenoids with a long chromophore of conjugated double bonds, which is responsible for their red to yellow coloration (Weedon and Moss, 1995; Britton, 1995). Aside from being responsible for the colour of a large variety of structures, carotenoids are required for photosynthesis and photoprotection (Domonkos et al., 2013). Because carotenoids are fundamental for these processes, the variations of their levels in photo-synthetic tissues is changed by the need to maintain the functionality of chloroplasts.

