

## Preliminary Data Regarding Polyphenols, Carotenoids and Flavonoids Content Correlated with Antioxidant Activity of Some *Taraxacum* Sp. Fluid Extracts

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**Abstract.** *In the biomedical sciences field of recent years, phytotherapeutic products usage has intensified because they are a safe and sustainable alternative, with less environmentally aggressive molecules that are able to meet therapeutic needs. Mature vegetal product Taraxacum sp., also known as dandelion, has been used for hundreds of years as a traditional remedy for liver, kidney, lung, gastric diseases and even some cancers, due to its anti-inflammatory and antioxidant effects. The aim of this paper was to assess the contents of some bioactive principles and overall antioxidant potential of Taraxacum sp. hydroalcoholic extracts obtained from both plant organs, herba and radix. The vegetal product was collected in the period September-October 2021, from spontaneous flora of South Dobrudja area, Romania. Fresh plant was dried at room temperature on metal sieves, grind to a fine powder and extracted 10% concentration in ethanol 50% and 70% concentrations, using cold maceration and Soxhlet extraction, standard methods, followed by filtration at normal pressure. Obtained hydroalcoholic extracts were analysed by UV-Vis spectrophotometry for determining total carotenoids, flavonoids and total polyphenols content. The total antioxidant capacity was quantified through photochemiluminescence method by comparison with the standard substance used for calibration, Trolox® as tocopherol analogue by ACL (Antioxidant Capacity of Lipid Soluble Substances) procedure using Photochem apparatus, Analytik Jena AG, Germany. Total carotenoids and flavonoids concentration, respectively polyphenols contents, were highest in 70% ethanol extracts, for the two applied extraction methods. Total antioxidant capacity (TEAC) was variable, with increased values in 70% ethanol extracts of both vegetal products, herba and radix. The preliminary valuable obtained results, offer us the*

*support for continuation of the studies regarding the therapeutic activity of Taraxacum sp. from Dobrudja spontaneous flora.*

**Keywords:** Taraxacum sp., polyphenols, carotenoids, flavonoids, antioxidant activity.

**DOI** <https://doi.org/10.56082/annalsarscibio.2022.1.31>

### **Introduction**

Plants under the genus *Taraxacum* belong to the family Asteraceae, also named Compositae, subfamily Cichorioideae, tribe Lactuceae, with many varieties and microspecies: 3515 according to *International Plant Name Index* (April, 2022). It is commonly known as dandelion and it has a global spread, being more common in temperate and subtropical regions, from the sea level to alpine elevations, tolerating almost every soil type.

Although, in some parts of the world it is regarded as a weed, dandelion or parts of it are widely used worldwide in a variety of foods. The leaves are eaten as a salad or vegetable, ground roots are used as a substitute for coffee, the heads of young and unopened flowers can be used as capers. Extracts of dandelion flowers are also used in flavouring soft drinks, wine, dairy products, candy and cheese (Khan and Abourashed, 2011; Schütz et al., 2006).

*Taraxacum* sp. is also a highly valuable plant for medicinal applications, as an herbal remedy for the prevention, management and treatment of various human diseases. Mainly it is considered a choleric, diuretic and a blood purifier herb, with hypoglycemic, antirheumatic, anti-carcinogenic, hypolipidemic antioxidant and anti-inflammatory properties. Hypolipidemic and hypocholesterolemic effects also, have in association with *Allium sativum* and *Oenothera biennis* extracts (Coprean et al., 2000). So, in the increasing demand for natural products as curative agents and foods, we can include *Taraxacum* sp.

*Taraxacum* sp. is a perennial laticiferous plant, up to 30 (-50) cm tall, with a long root. The thick, branched taproot, brown, dark-grey externally and white internally, can be up to 2–3 cm in diameter and grow up to 1–2 m in length (von Hofsten, 1954; Solbrig, 1971). The lateral roots are arranged in two rows that wind in a loose spiral around the root and are distributed along its length. The stem is only one to two, maybe three centimetres long, with very short internodes at or below the soil surface. The leaves form a basal, radial rosette (Holm et al. 1997). Leaves can be both horizontal or almost vertical, with a length of 5 to 15-20 cm (Figs. 1. A, C). The leaves are highly variable in shape - oblanceolate, obovate, but more often is pinnatisect, ranging from lobeless forms to highly incised. When leaves are lobed, the lobes point to the leaf base. Margins of the leaves may vary in the depthness of the lobes, from lobeless to triangular dentate edges (giving it the name dandelion from French "dent de lion", meaning lion's tooth). The end lobe, instead, is usually larger than the others.

Before blooming, cylindrical scapes (peduncles), 5–50 cm tall, arise from the rosette. Each of this scape bears a terminal capitulum (inflorescence) of 2–5 cm diameter (Gleason 1963; Holm et al. 1997). Each capitulum is a group of approximately 250