



Research paper

Ethnopharmacological survey of medicinal plants in Karaisalı and its surrounding (Adana-Turkey)



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ARTICLE INFO

Keywords:

Ethnobotany
Medicinal plants
Use value
Karaisalı
Adana
Turkey

ABSTRACT

This study identifies wild plants collected for medical purposes by local people of Karaisalı County in the Mediterranean Region of Turkey, together with the uses and local names of these plants. A field study was carried out over a period of approximately 2 years (2008–2010). During this period, 129 vascular plant specimens were collected. Demographic characteristics of participants, local plant names, parts used and methods of preparation of the plants were investigated and recorded. Within the scope of the study, relevant plant species were collected; herbarium materials were prepared; and the specimens were labelled. In addition, the use-value of the species was determined and calculated for the medicinal plants included in the study.

A total of 129 medicinal plants belonging to 59 families were identified in the region. The most common families were: Lamiaceae (14 plants), Asteraceae (11 plants), Rosaceae (10 plants), Apiaceae (5 plants), Euphorbiaceae (5 plants).

A comparison of the data obtained in this study with experimental data obtained in previous laboratory studies, confirmed most of the ethnobotanical uses. The plant flora of Karaisalı is threatened by such factors as grazing, expansion of new agricultural lands, and unsustainable harvesting of plants to generate income. Steps should be taken immediately to ensure the inclusion of relevant flora within conservation designations.

1. Introduction

Plants and products of plants have always had a purposeful meaning in many parts of human life. The use of plants as medicines predates written human history and knowledge of their use was widespread in ancient civilizations. Until the middle of the 19th century, plants were the main therapeutic agents used by humans, and even today their role in medicine is still relevant. One can argue at length as to what precise percentage of the world's population use local and traditional medicines. These herbal (or mineral or fungal or occasionally animal) medical products form systems of knowledge and practice that have been transmitted over centuries and which continuously change (Heinrich, 2010). In developing countries and rural societies, the use of medicinal plants is both a valuable resource and necessity, and furthermore it provides a viable alternative to primary health care systems (Hayta et al., 2014a,b).

Since the Republican Period (1923) research has abounded regarding medical folklore, its role in disease management and the manner in which herbal drugs are used colloquially in Turkey (Baytop, 1999).

Such research is crucial because documentation of the indigenous knowledge through ethnobotanical studies is important for the conservation and utilization of biological resources (Muthu et al., 2006). The majority of Turkish people living in rural areas traditionally use plants for nourishment and medical purposes (Çakılcioglu et al., 2011).

During the past decade, several studies have systematically analyzed the consumption and gathering of wild edible plants and medicinal plants in Turkey (Ertuğ, 2004; Kültür, 2007; Satıl et al., 2011; Polat et al., 2011, 2012, 2015a,b; Çakılcioglu and Turkoglu, 2007a,b; Çakılcioglu and Khatun, 2011; Khatun et al., 2012; Gönenç et al., 2014; Hayta et al., 2014a; Kaval et al., 2014, 2015; Erdogan et al., 2012, 2014, 2017; Mükemre et al., 2015, 2016; Korkmaz et al., 2016; Günbatan et al., 2016).

This study identified not only the wild and cultivated plants collected for medical purposes by local people of Karaisalı County in the Mediterranean Region, but also the uses and local names of these plants. No previous floristic and ethnobotanic studies are reported to have been conducted in Karaisalı.

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Fig. 1. Geographical location of the study area in Turkey.

2. Materials and methods

2.1. Study area

The study area is located West of Anatolian diagonal of the Mediterranean Region. Karaisalı (Fig. 1), is included in Mediterranean Plant Geography Region and falls within the C5 grid square according to the Grid classification system used in the Flora of Turkey (Davis, 1965–1985).

Karaisalı is a small community (population c 6690) in the district of Adana province located at an elevation of 250 m above the Taurus Mountains in the Mediterranean region. The locality hosted communities of different cultures throughout the history. It became a district in 1835. It is bounded by İmamoğlu in the east, Yüreğir and Seyhan in the south, Tarsus and Pozantı in the west and Aladağ districts in the north. Karaisalı County is located between 37°, 13.8' north latitudes and 35° 3.0' east longitudes.

While a part of the district terrain is very mountainy and woody, another part is rather rough or flat. Especially Akdağ, Cilgürlüz Mountain, Susuz Mountain, Köpek Mountain and Barak Mountain are among the important hills above the Taurus mountains. There are also plateaus between these mountains like Kızıldağ, Kaltak and Tereli. In the district which mainly comprises of mountainy and woody terrains, the community is generally engaged in agriculture, stockbreeding and forestry. Karaisalı has chromium, iron, copper, lead, and rich lignite deposits.

2.2. Interviews with local people

Interviews were carried out on the busy hours of the common areas such as bazaars, gardens and tea houses visited by the citizens of Karaisalı County and its villages. The respondents of the questionnaire

were Turkish citizens. Mean age of the respondents was 56 years. A questionnaire was administered to the local people, through face-to-face interviews (Appendix A) (Fig. 2). During the interviews, demographic characteristics of the study participants, and local names, utilized parts and preparation methods of the plants were recorded. The people who participated in the study were requested to indicate the wild plants they used.

2.3. Plant materials

A field study was carried out over a period of approximately 2 years (2008–2010). During this period, information about medicinal use of 104 wild and 25 cultivated plants was collected. The plants were pressed in the field and prepared for identification. Plants were identified using the standard text, “Flora of Turkey and the East Aegean Islands” (Davis, 1965–1985; Davis et al., 1988) and were compared with the specimens in Nigde University Herbarium. The names of plant families were listed in alphabetic order. Scientific names of plant species were identified according to the International Plant Name Index (IPNI: <http://www.ipni.org>). The authors examined whether the plants reported in the survey had literature records or not.

2.4. Calculations

The use value (Trotter and Logan, 1986), a quantitative method that demonstrates the relative importance of species known locally, was also calculated according to the following formula: $UV = U/N$, where UV refers to the use value of a species; U to the number of citations per species; and N to the number of informants.

The current use of medicinal plants as conventional and modern drugs shows that they are actively used. There may be some plants which are currently not used for medicinal purposes but which may

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