



## Medicinal plants of Kurna Village (Burdur province)

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**Abstract:** Plants have been among the primary natural sources used in traditional medicine, both in the past and present. Due to the many advantages they offer compared to the synthetic drugs, the interest in medicinal plants is rapidly increasing not only worldwide but also in our country. This study has been conducted with the aim of identifying natural medicinal plants in the Kurna Village and its surroundings. As a result of fieldwork conducted during the flowering periods of the plants, 40 medicinal plant taxa belonging to 39 genera from 21 families were identified. Family Asteraceae is notable having the highest number of taxa with 7 taxa, followed by Lamiaceae with 5 taxa, families Brassicaceae, Boraginaceae and Fabaceae each with 3 taxa. The scientific names, parts used and areas of use concerning the medicinal plants determined were presented. We hope that the presented data will provide guidance to local people, raise awareness on the floral diversity, add data to relevant literature.

**Keywords:** Burdur, flora, folk medicine, Mediterranean.

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### 1. Introduction

Rapid progress in the technology necessitates sustainable use of natural resources. As the side effects of modern drugs are of major concern, natural supplementary and therapeutic plants have been widely used in traditional medicine and commercial field (Başer, 1990). The number of plant based drugs known to be used in medicine has reached 13 000 by early 19<sup>th</sup> century (Baytop, 1984). Being at the meeting point of various climatic zones and having diverse habitat types, Türkiye is home to a rich flora (Baytop, 1991), which according to Flora of Turkey correspond to approximately 11 700 plant taxa (Davis, 1965-1988; Güner et al., 2000), of which 3 649 being endemics (Güner et al., 2012). As with the other parts of the world, medicinal plants are used frequently in folk medicine in Türkiye even though the number of medicinal plants used (round about 500 species) is fairly low relative to its considerably rich species richness and endemism, also when compared with countries like China (4 941 species), India (3 000 species) and USA (2 564 species) (Bayramoğlu et al., 2009).

The interest on alternative therapy methods and medicinal plants have been brought globally to a further level during

the recent COVID-19 pandemia, and medicinal plants in protective and complementary medicine have acquired another dimension by means of explorative research on phytoactive chemicals strengthening the immune defence system against viral pathogens (Şekeroğlu and Gezici, 2020). However, contrastingly, folk medicine is largely restricted to remote, rural areas with people still in connection with wild plants especially in Türkiye. Primarily the natural plants in Turkish folk medicine are used either as food or for medicinal purposes, while plant dyes and other uses are less common. Some plants with poisonous compounds that may be potentially important for public health and animal welfare are also within the range of interest (Baytop, 1984). Disparity between growing speed of modernization and loss of connection with nature, necessitates gathering of accumulated, but sparse local data using scientific methodology as evidently these would provide more opportunities to obtain raw materials from the natural resources in a sustainable way, and joint platforms of applied sciences like pharmacy or medicine with botany will contribute to the economy, health sciences and nature conservation. Accordingly, this study aims to determine medicinal plant taxa as part of the native flora of Kurna

village area within Burdur province and raise awareness among local people on the issue within context of a rapid urbanization period.

## 2. Materials and Method

Location of the study area is 8-10 km away from the Burdur city in the SSE direction en route to Antalya, situated in C3 square according to Davis (1965-1985) grid system, and between 30° 20' N and 37° 41' E coordinates. Altitudinal range varies between 1100 and 1300 m., while the climate shows characteristics of semiarid Mediterranean type with an annual precipitation of 426.4 mm and annual temperature of 13.3°C (maximum and minimum monthly averages being 32.2 and -0.9°C, respectively).

Field studies involving collection, labelling and deposition of herbarium materials in Burdur Mehmet Akif Ersoy University Biology Department following standard methodology, were carried out in the flowering season of 2022-2023 period. Identifications were made from family level down to subspecific ranks using primarily Flora of Turkey and the East Aegan Islands (Davis, 1965-1985; Davis et al., 1988; Güner et al., 2000), current taxonomy was checked using Güner et al. (2012).

## 3. Results

40 vascular plant taxa belonging to 39 genera from 21 different families were identified from the material that had been collected in the different vegetative periods (Table 1). Among the 21 families, leading 5 families with the highest species counts are listed as follows; Asteraceae (7 taxa), Lamiaceae (5 taxa), Brassicaceae, Boraginaceae and Fabaceae (3 taxa).

**Table 1** Medicinal plants from the study area, their utilized parts and medicinal uses.

Family	Species	Utilized parts	Medicinal use
Pinaceae	<i>Pinus brutia</i> Ten. var. <i>brutia</i>	Needles stem, pollens	Effective on respiratory, urological, rheumatological, dermatological diseases (6).
Acanthaceae	<i>Acanthus hirsutus</i> Boiss. subsp. <i>hirsutus</i>	Leaves	Wound healing and apophlegmatical (6).
Asteraceae	<i>Centaurea urvillei</i> DC. subsp. <i>stepposa</i> Wagenitz <i>Chondrilla juncea</i> L.	Various parts Roots	Antifungal (8) Effective on stomach pain; wound healing (6).
	<i>Cnicus benedictus</i> L.	Roots, stem	Effective on liver and gastrointestinal problems;
Boraginaceae	<i>Alkanna tinctoria</i> (L.) Tausch subsp. <i>tinctoria</i>	Roots	Laxative and wound healing (6), applied as ointment (14).
Brassicaceae	<i>Echium vulgare</i> L. subsp. <i>vulgare</i> <i>Moltkia aurea</i> Boiss. <i>Arabis alpina</i> L. subsp. <i>brevifolia</i> (DC.) Cullen	Flowers, stem, leaves Flowers, leaves Flowers, stem, leaves	Urinative and apophlegmatical (6). Antioxidant and antimicrobial (4). Antioxidant and antimicrobial (3).
Caprifoliaceae	<i>Capsella bursa-pastoris</i> (L.) Medik. <i>Diploaxis tenuifolia</i> (L.) DC. <i>Scabiosa columbaria</i> L. subsp. <i>ochroleuca</i> (L.) Čélak. var. <i>ochroleuca</i>	Flowers, stem, leaves Flowers	Urinative and antifungal (9). Laxative, urinate, wound healing (6).
Caryophyllaceae	<i>Dianthus calocephal</i>	Flowers	Antimicrobial (1).
	<i>Cota tinctoria</i> (L.) J.Gay ex Guss. var. <i>tinctoria</i>	All parts	antipyretic, appetising, antidiarrheal, urinate, cell regenerative, wound healing (7). Diaphoretic, emetic, antispasmodic (6).
	<i>Lactuca serriola</i> L.	Flowers, stem, extract	Urinative, antispasmodic and sedative (poisonous when overused) (6). Effective on dyspnea (12); antioxidant and antimicrobial (5).
	<i>Senecio vernalis</i> Waldst.& Kit.	Flowers, leaves	Effective on arteriosclerosis, hypertension, rheumatism, kidney diseases; tubers laxative and emetic (6), antifungal (2).
	<i>Scorzonera suberosa</i> K.Koch subsp. <i>suberosa</i>	Various parts	Effective on arteriosclerosis, hypertension, rheumatism, kidney diseases; tubers laxative and emetic (6), antifungal (2).

	<i>us</i> Boiss.						and inflammations in respiratory and gastrointestinal tract (6).
	<i>Stellaria media</i> (L.) Vill.	Flowers stem, leaves	Urinative, apophlegmatical, wound healing (6), and antioxidant (16).		<i>Malva sylvestris</i> L.	Leaves, fresh stems	Softener, protective against ulcers and inflammations in respiratory and gastrointestinal tract (6).
Convolvulaceae	<i>Convolvulus arvensis</i> L.	Roots, flowers, stem, leaves, extract	Laxative, billigenic, anthelmintic (6), antimicrobial (11)				and inflammations in respiratory and gastrointestinal tract (6).
Euphorbiaceae	<i>Euphorbia rigida</i> M. Bieb.	Extract	Laxative, external use Effective on warts and rheumatismal pain (6)	Papaveraceae	<i>Papaver rhoeas</i> L.	Flowers, fruits, leaves	Sedative, cough suppressant, chest softener, and mildly opiate (6).
Fabaceae	<i>Lotus corniculatus</i> L. var. <i>tenuifolius</i>	Various parts	Sedative (6).	Plantaginaceae	<i>Plantago lanceolata</i> L.	Leaves	Effective on constipation; chest softener, apophlegmatical and urinate;
	<i>Ononis spinosa</i> L. subsp. <i>anti quorum</i> (L.) Briq.	Roots	Effective on egzema; urinate, antiseptic and wound healing (6).				externally wound healing and used for suppuration (6).
	<i>Trifolium pratense</i> L. var. <i>pratense</i>	Flowers	Apophlegmatical and antiseptic (6;13).	Polygonaceae	<i>Polygala pruinosa</i> Boiss. subsp. <i>pruinosa</i>	Flowers, fruits, leaves	Emetive, apophlegmatical chest softener, galactagogue, diaphoretic and tonic (6).
Fagaceae	<i>Quercus coccifera</i> L.	Acorns	Effective on throat problems; laxative, tonic and antiseptic (6).	Ranunculaceae	<i>Ranunculus sceleratus</i> L.	Various parts	Galactagogue and emmenagogue, externally poisonous and caustic (6).
Lamiaceae	<i>Ajuga chamaepitys</i> (L.) Schreb subsp. <i>mesogitana</i> (Boiss.) Bornm.	Leaves, stem	Urinative, tonic, diaphoretic, emmenagogue, wound healing and antidotal (6).	Rosaceae	<i>Prunus x domestica</i> L. <i>Rosa canina</i> L.	Fruits	Nutritious and mildly laxative (6). Effective on constipation and diabetes mellitus; tonic (6).
	<i>Ballota nigra</i> L. subsp. <i>anatolica</i> P.H. Davis	Flowers, leaves, stem	Urinative, digestive, anthelmintic, emmenagogue (6).	Solanaceae	<i>Datura stramonium</i> L.	Leaves	Effective on asthma, cough and cramps; antispasmodic, poisonous and narcotic (6).
	<i>Lamium maculatum</i> L. var. <i>maculatum</i>	Leaves, stem, flowers	Laxative and tonic (6).	Asparagaceae	<i>Muscari neglectum</i> Guss. Ex. Ten	All parts	Effective on skin problems (10).
	<i>Salvia cadmica</i> Boiss. var. <i>cadmica</i>	Various parts	Astringent (15).	Poaceae	<i>Secale cereale</i> L. var. <i>cereale</i>	Seeds	Laxative (6).
Malvaceae	<i>Sideritis montana</i> L. subsp. <i>remota</i> (d'Urv.) P.W.Ball <i>Malva neglecta</i> Wallr.	Leaves, stem	Effective on cold, flu, stomach pain and cough (17); gas and appetite-stimulant (6). Softener, protective against ulcers				

1) Abbasolu and Türköz, 1995; 2) Bahadır, 2009; 3) Balpınar, 2018; 4) Balpınar and Okmen, 2017; 5) Balpınar and Okmen, 2019; 6) Baytop, 1984; 7) Dülger, 2012; 8) Erecevit Sönmez and Çakılcıoğlu, 2021; 9) Erik, 2012; 10) Fidan, 2018; 11) Kırbag et al., 2005; 12) Korkmaz and Alpaslan, 2014; 13) Leblebici et al. 2013; 14) Ötnü and Akan, 2020; 15) Özdemir and Alpinar, 2015; 16) Rakhimzhanova et al., 2018; 17) Yılmaz, 2013.

#### 4. Discussion

Literature review suggests a diverse array of medicinal uses, some of which have recently been assessed (Balpınar, 2018, Balpınar and Okmen, 2017 and 2019) from the area, even though majority of the species and their uses have been recorded earlier (Baytop, 1984). Several factors such as used parts, usage style, collecting time, and dosage are important criteria in all other plant based remedies, as it applies to our small sample. Some of the recorded taxa like *Lactuca serriola*, *Scorzonera suberosa* subsp. *suberosa*, *Ranunculus sceleratus*, and *Datura stramonium* should be handled with care as overdose levels of these may be poisonous for humans.

#### 5. Conclusion

In the present study, medicinal plants of a village at the periphery of an expanding city center were studied. Even though a smaller part of the sampled plant taxa is known to local people, and such taxa receive wider application area outside scope of medicinal purposes, identification skills are not precise in general even though all the taxa are grown naturally in and around the settlement area. Accordingly, although it is a preliminary work, the presented data will raise awareness and guidance about the potential of the local flora. The current state of knowledge present two challenges: first is the correct identification, usage and amount of utilized taxa, while the other being the survival of populations especially when the rare and endemic plants are involved as the public interest may be directed towards a smaller set of taxa or associated areas. It is clear that the ethnobotanical applications are multifaceted and require interdisciplinary research, to which it is hoped that the presented data will provide a base or background information for the science community and local administrative units in the view of rapidly changing landscape.

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No conflict of interest is declared by the authors.

#### References

Abbasolu U, Türköz S. 1995. Antimicrobial activities of saponin extracts from some indigenous plants of Turkey. *Int J Pharmacogn.* 33(4):293-296.

Bahadır Ö. 2009. Türkiye'de yetişen bazı *Scorzonera* türleri üzerinde farmakognozik araştırmalar. A.Ü. Eczacılık Fakültesi, PhD Thesis

Balpınar, N. 2018. The biological activities of *Arabis alpina* L. subsp. *brevifolia* (DC.) Cullen against food pathogens. *Open Chemistry.* 16 (1):930-936

Balpınar N, Okmen G. 2017. The biological activities of *Moltkia aurea* Boiss., an endemic species to Turkey. *Afr. J. Tradit Complement Altern Med.* 14(2):60-64.

Balpınar N, Okmen G. 2019. Biological activities and chemical composition of *Senecio vernalis* growing in the lakes region of Turkey. *IJEST,* 16(9):5205-5212

Başer HC. 1990. Tıbbi bitki ve baharatların Dünya'da ve Türkiye'deki ticareti ve talep durumu. *Tarım Orman ve Köyişleri Bakanlığı Dergisi.* 53:18-22

Bayramoğlu MM, Toksoy D, Şen G. 2009. Türkiye'de Tıbbi Bitki Ticareti II. Ormanlıkta Sosyo-Ekonomik Sorunlar Kongresi, s. 89-98, 19-21 Şubat, Isparta

Baytop T. 1984. Türkiye'de bitkiler ile tedavi (Geçmişte ve bugün). İstanbul Üniversitesi Yayınları

Baytop A. 1991. Tıbbi bitkilerimizin yerli adları hakkında. *Ziraat Mühendisliği.* 239: 25-26

Davis PH. 1965-1985. Flora of Turkey and the East Aegean Islands. Vol. 1-9. Edinburg: University Press

Davis PH, Tan K, Mill RR. 1988. Flora of Turkey and the East Aegean Islands. Vol. 10. Edinburg: University Press

Dülger D. 2012. *Cnicus benedictus*'un besleyici ve kimyasal özelliklerinin belirlenmesi. Uludağ University, PhD Thesis

Erecevit Sönmez P, Çakılcıoğlu U. 2021. Türkiye'de yetişen *Centaurea urvillei* DC. subsp. *urvillei*' nin antibakteriyel ve antifungal özelliği. *Int J Pure Appl Sci,* 7 (3):517-525. doi: 10.29132/ijpas.988385

Erik S. 2012. Çok yönlü ruderal bir tür: *Diplotaxis tenuifolia* (L) DC. Ankara Üniversitesi Çevre Bilimleri Dergisi. 4 (1):27-36. doi: 10.1501/Csaum\_0000000060

Fidan EŞ. 2018. An ethnobotanical study in some villages in the Tek Tek mountains, Harran University, PhD Thesis

Güner A., Özhatay N, Ekim T, Başer K. 2000. Flora of Turkey and the East Aegean Islands 11. Edinburgh Univ. Press

Güner A, Aslan S, Ekim T, Vural M, Babaç MT. 2012. Türkiye Bitkileri Listesi (Damarlı Bitkiler): Nezahat Gökyiğit Botanik Bahçesi ve Flora Araştırmaları Derneği Yayınları

Kırbağ S, Kurşat M, Kırbağ Zengin F. 2005. Elazığ'da tıbbi amaçlar için kullanılan bazı bitki ekstraktlarının antimikrobiyal aktiviteleri. *Fırat Üniversitesi Doğu Araştırmaları Dergisi,* 3(3):168-171

Korkmaz M, Alpaslan Z. 2014. Ergan Dağı Erzincan-Türkiye'nin etnobotanik özellikleri. *Bağbahçe Bilim Dergisi,* 1 (3):1-31

Leblebici S, Bingöl AN, Akın B. 2013. Halk Arasında Kullanılan Bazı Sulak Alan Bitkileri ve Tıbbi Özellikleri. III. Sulak Alanlar Kongresi, 23-25 Ekim, 331-336. sayfa, Samsun

Ötün H, Akan H. 2020. Şanlıurfa'daki eczanelerde ve aktarlarda fitoterapi amaçlı satılan bitkiler. *Kahramanmaraş Sütçü İmam Üniversitesi Tarım ve Doğa Dergisi,* 23(4):947-965

Özdemir E, Alpınar K. 2015. An ethnobotanical survey of medicinal plants in western part of central Taurus Mountains: Aladağlar (Niğde-Turkey). *J Ethnopharmacol,* 166:53-65

Rakhimzhanova A, Kılınçarslan Ö, Mammadov R. 2018. *Stellaria media* ekstraktlarının antioksidan aktivitesinin belirlenmesi ve fenolik bileşenlerinin karakterizasyonu. *Ordu Üniversitesi Bilim ve Teknoloji Dergisi,* 8(2):165-173

Şekeroğlu N, Gezici S. 2020. Koronavirüs pandemisi ve Türkiye'nin bazı şifalı bitkileri. *Anadolu Kliniği Tıp Bilimleri Dergisi.* 25 (Special Issue on COVID 19):163-182

Yılmaz E. 2013. Toroslar da yetişen 7 endemik *Sideritis* türünün fenolik maddeleri. G. Ü. Sağlık Bilimleri Enstitüsü. PhD Thesis