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Checklist of Medicinal Plants in the Central Plateau of Al- Batnan, Libya.

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A B S T R A C T

This research was undertaken to explore the variety and allocation of medicinal specis in the central plateau of Al-Batnan. The research zone was randomly segmented into five regions . Between March 2023 and October 2024, a number of field surveys were conducted in the study area to collect plant samples. The findings revealed that an overall of 36 varieties of therapeutic flora from 22 families and 35 genera were present. With five genera and five species, the Lamiaceae family had the most genera in the study area. Fabaceae came in second with four genera and four species.

Based on our research, the dominant category of healing plants in the examined regio n was Chamaephytes (25%), succeeded by Hemicryptophytes (22.3%) 8 species ,and Phanerophytes and Therophytes (19.4%) it is represented by 7 type for each of them and Geophyte (13.9%) 5 species. The results showed that perennial plants constituted the largest proportion of medicinal plants in the area representing 80.6 %. In our study, plants belonging to genera known to be of medicinal importance have been recorded, such as *Artemisia* ,*Thymus* , *Salvia* , *Teucrium* , *Ziziphus, Peganum*.

1 Introduction

A medicinal plant is defined as plant that holds one or several chemical compounds within one or multiple parts at low or elevated concentrations; and possesses the physiological capacity to alleviate particular health .(Heikal & Omar, 1993).

Approximately 80% of people worldwide use herbal medicine as their primary form of treatment, according to the World Health Organization. Approximately 70% of doctors in Germany prescribe the 600–700 herbal-based medications that are available. Over the past 20 years, the use of herbal medicine has significantly increased in the United States due to growing dissatisfaction with the high cost of prescription drugs as well as a resurgence of interest in natural and organic remedies. Over the last 30 years, there has been a notable global rise in the demand for and use of medicinal plants, reflecting a growing consensus on the value of traditional health systems and the effectiveness and safety of medicinal plants in treating various illnesses. However, this increasing awareness and demand have also led to a rapid expansion in the international trade of medicinal plants, often causing harm to natural habitats and native plant populations in their countries of origin (Motaleb *et al*., 2011). Libya is home to 2,103 plant species, classified into 856 genera and 155 families (Ying et al., 2013). Literature reports indicate that Libya is home to around 450 species of medicinal plants, with 208 of these being specifically identified and commonly utilized by Bedouins and local populations in traditional healing practices (Vasisht & Kumar, 2004; El-Mokasabi, 2014). Where, around 30% of Libya's population receives their medical care from traditional practitioners. (Kotb, 1985; El-Gadi & Bashaina,1997).

By providing an initial inventory, characterizing, and compiling a list of the medicinal plant species within the research zone, this investigation aims to brid ge the knowledge divide.

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2. Materials and Methods

2.1 Research Location:

Libya's far east is home to the al-Batnan Plateau. It has rectangular shape and extends from north to south, with a view of the Mediterranean Sea. Beginning from Ain Al-Ghazala in the west, the western administrative limits of Al-Batnan slope nearly straight to the Great Sand Sea region. Its eastern governance boundaries begin east of Al-Burdia, descend in a winding manner, then straighten out and head south to the area surrounding the Vast Dune Ocean. This research center on the core region of the Batnan Plateau, which lies between longitudes 23° E and 25° E and comes right after the plateau's coastal section. Situated 200 meters elevated from sea level. (Figure 1) (Al- Shaeri, 2002).

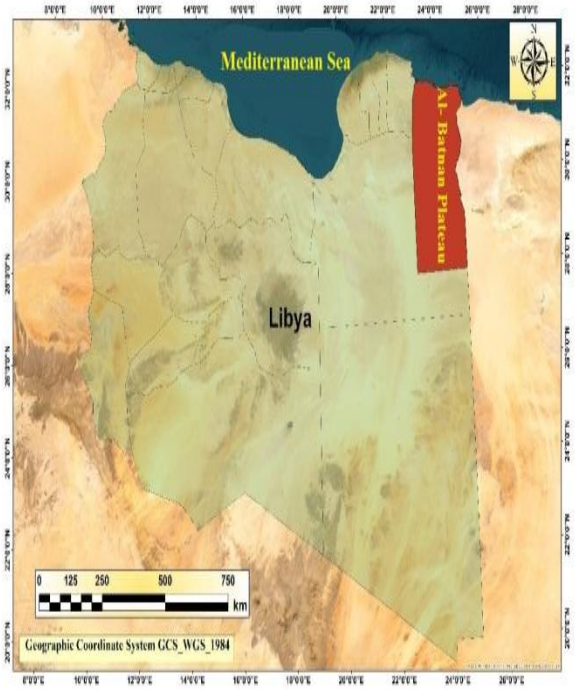

Figure 1: The Study Area

2.2 specimens collection and Identification

Repeated visits were made to the study area during the period from March 2023 to October 2024, Additionally, plant varieties were classified in ac cordance with the Libyan Flora Encyclopedia (Flora of Libya), (Ali & Jafri, 1976- 1977; Jafri & El-Gadi, 1977–1993; El-Gadi & El-Taife, 1989 and Boulos, 1999, 2000, 2002 & 2005).

3. Results and Discussion:

Medicinal plants are thought to have a positive impact on health care and are frequently used to cure and prevent particular conditions and diseases. Medicinal plants are seen as a potential link between important biodiversity protection, health care, and sustainable economic growth. References detailing the use of medicinal plants in Libya were used to gather information about the diseases and therapeutic effects of the plants (Kotb, 1985; El-Gadi and Maghribi, 1999).

A total of 36 varieties, encompassing 35 genera and 22 families, were discovered during the botanical investiga tion of the indigenous healing flora. The results of our current investigation revealed to numerous plant species with potential medicinal value for the treatment of major and minor human diseases . Medicinal plants growing in study area with their families, local name, medicinal use, the scientific name , life forms and Part used, presented in Table (1) .

The results showed that perennial plants constituted the largest proportion of medicinal plants in the study area representing 80.6 % , It was also observed that the results were similar to what (Arwag, 2025) concluded in their study of the Wadi al-Qamil area west of Tobruk where his results showed that the proportion of perennial plants was higher than annual plants, reaching (49.41%).

A research investigation into healing flora in Wadi Al-Kuf revealed a rich diversity of perennial species, comp rising 74 distinct types that account for 74.7% of all do cumented medicinal varieties. (Al-Traboulsi & Alaib, 2021).

The dominance of perennial species over the other life durations can be attributed to its tolerant of climatic changeability than annuals. (Arwag 2025). Based on the variety of genera and species identified in the research area, the Lamiaceae family holds the larges t share of medicinal plants (five genera and five specie) , aligning with the conclusions drawn by (Mukassabi *et al*. 2017).

Following closely is the Fabaceae family (four genera a nd four species). These two families are ranked among the foremost six in Libya (Ali and Jafri, 1977; Jafri & Al-Qadi, 1986). In our research, plants belonging to genera known to be of medicinal importance have been recorded, such as *Artemisia* ,*Thymus* , *Salvia* , *Teucrium* , *Ziziphus*, *Peganum.* A number of these genera were mentioned in the Arwag (2022).

(Table 1). List of medicinal plant species:

Species	Local name	Life forms	Part used	Medicinal use	References
Aizoaceae					
Mesembryanthemum nodiflorum L.	Ghasol	Therophyte	Seeds	Antipoetic	Louhaichi *et al*. (2011)
Alliaceae					
Allium roseum L.	-----	Geophyte	Leaves	Traditionally, the plant is used to treat headaches, rheumatism, bronchitis, and colds (via inhalation). It is also known to reduce fever and stimulate appetite.	El-Gadi and Maghribi,1999
Anacardiaceae					
Rhus tripartita (Ucria) Grande	Jdary	Phanerophyte	Shoot – Bark	Gastritis	El-Mokasabi (2014)
			Bark	A decoction of the plant bark is used to treat stomach ulcers because this plant has a tanning property.	Al-Shaeri (2002)
Apiaceae					
Pituranthos tortuosus (Desf.) Benth. & Hook.f.	Gezzah	Chamaephyte	Leaves, roots and stem extracts	Potential uses include nutritional benefits and antifungal properties.	Louhaichi *et al*. (2011)
			Aerial parts	. It is utilized to reduce elevated blood pressure by simmer ing the herb.	Al-Shaeri (2002)
Araceae					
Arum cyrenaicum Hruby	Renash	Geophyte	---	Treatment for psoriasis, corn, and bone spurs.	El-Mokasabi (2014)
Asclepiadaceae					
Caralluma europaea (Guss.) N.E. Br.	Dghamos	Hemicryptophyte	Powder and eaten fresh	Hair-fall	El-Mokasabi (2014)
Asteraceae					
Artemisia herba-alba Assrr	Sheeh	Chamaephyte	Shoot	Treatment for tapeworms, diarrhea, and digestive disturbances. The flower infusion is used topically as a poultice as an antiseptic and antibacterial, antifungal.	Kotb (1985)

Carthamus lanatus L.	Qaws	Chamaephyte	Aerial parts	Exhibits anti-inflammatory	Louhaichi *et al*. (2011)
Chamomilla pubescens (Defs) Alavi	Gmaila	Therophyte	Aerial parts	The infusion of the herb is employed to alleviate abdominal and intestinal discomfort as well as various infections altogether.	Al-Shaeri (2002)
Capparaceae					
Capparis spinosa Linn.	Kbbar	Hemicryptophyte	Leaves, Fruits and Root	Used to treat conditions such as spleenomegaly, vomiting, piles, and stomach disorders.	El-Darier& El-Mogaspi (2009)
Chenopodiaceae					
Anabasis articulata (Forssk) Moq.	Ajram sahrawy	Chamaephyte	Fruits and branches	Respiratory stimulant, used as a treatment for eczema and skin diseases	Mukassabi *et al.*(2017)
Atriplex halimus L.	Gataf	Phanerophyte	The whole plant	This herb is employed in the management of diabetes and possesses soothing and antacid effects.	Louhaichi *et al*. (2011)
Convolvulaceae					
Convolvulus arvensis L.	Aleeg	Hemicryptophyte	Shoots	Treatment for varicose veins, gingivitis, and rheumatic conditions.	El-Mokasabi (2014)
Fabaceae					
Lotus corniculatus L.	Kert	Hemicryptophyte	Whole plant	The plant is used as an astringent and to heal wounds. At the same time, it is a poisonous plant, but its toxicity is mild and does not harm humans.	Kotb, 1985
Medicago sativa L.	Kdab	Hemicryptophyte	Leaves and seeds.	It is used to treat diabetes, thyroid dysfunction, kidney, bladder, and prostate problems, and to increase urine flow. The seeds are used to lower high cholesterol levels and treat rheumatoid arthritis.	Kotb, 1985
Melilotus indica L.	-----	Therophyte	Flowering branches and seed	. The seeds are used to treat urinary incontinence in children.	Boulos, 1983

Retama raetam (Forssk.) Webb	Retem	Phanerophyte	Root, branches and fruit	Treatment for sinusitis and anti-tumor therapy.	Boulos, 1983
Lamiaceae					
Ajuga iva (L.) Schreb.	Shandgora	Chamaephyte	Aerial parts	Treatment for gastritis, diarrhea, ulcers, and parasitic worms. hypoglycemic	Kotb (1985)
Ballota pseudodictamnus (L.) Benth.	-----	Chamaephyte	Shoot	Gastritis	El-Mokasabi (2014)
Salvia aegyptiaca L.	Lahyat Al-Shaieb	Hemicryptophyte	Aerial parts	The plant has traditionally been used to support digestive health,	Kotb (1985)
Teucrium polium (Decne) Aschers	Jaada	Chamaephyte	Shoots and leaves	Treatment for thyroiditis, anemia, hypertension, and renal stones.	El-Mokasabi (2014)
Thymus capitatus (L.) Hoffmanns. & Link	Zaater	Phanerophyte	Leaves and flowering tops	Used as a bronchodilator and in the treatment of asthma , A decoction of the leaves is used as a gargle to disinfect the mouth and treat throat infections.	Louhaichi *et al*. (2011)
Liliaceae					
Asparagus stipularis Forss.	-----	Geophyte	The whole plant	Treatment for allergies and prostatitis. a decoction of the seeds is used in the treatment of hemorrhoids.	El-Mokasabi (2014)
Asphodelus microcarpus Viv	Ansel	Geophyte	Bulbs and seeds	it is used externally to treat ulcers. the seeds arc used to make a kind of dried milk. The root or tuber is reputed to prevent pregnancy.	Kotb (1985)
Urginea maritima (L.) Baker	Ansel	Geophyte	The bulbs	It has diuretic, expectorant, and anti-bronchitis, anti-cough, and anti-asthmatic properties.	Kotb, 1985
Malvaceae					
Malva sylvestris L.	Khbaiz	Chamaephyte	Dried flowers, dried leaves, and fresh flowering plants.	The flowers and leaves are used to treat coughs, asthma, bronchitis and tonsillitis, throat and mouth irritation, and gastrointestinal irritation.	Mukassabi *et al.*(2017)
Plantaginaceae					
Plantago albicans L.	Neem	Hemicryptophyt	Seeds	Laxative and beneficial in treating constipation accompanied by intestinal colic.	Mukassabi et al.(2017)

Plantago ovata Forssk.	-----	Therophyte	Seeds	The seeds are commonly used to treat urinary and genital tract infections, rheumatism, ulcers and wounds (astringent).	Mukassabi *et al.*(2017)
Poaceae					
Hordeum vulgare L.	Shaer barry	Therophyte	Grains	Renal stones	El-Mokasabi (2014)
Polygonaceae					
Emex spinosa (L.) Campd.	Henzan	Therophyte	Leaves	Renal stones	El-Mokasabi (2014)
Polygonum equisetiforme Sm.	Gerdab	Hemicryptophyte	Shoot and roots	Treatment for renal stones, rheumatic conditions, and wounds.	El-Mokasabi (2014)
Primulaceae					
Anagallis arvensis L.	Ain-Al-gata	Therophyte	Whole herb	The herb is diuretic, diaphoretic and expectorant, used in epilepsy, rheumatic inflammation, hepatic, renal	Kotb (1985)
Rhamnaceae					
Ziziphus lotus (L.) Lam.	Sader	Phanerophyte	Roots and branches	A decoction of the roots or branches of the plant is drunk to treat acute gastritis.	Al-Shaeri (2002)
Solanaceae					
Lycium europaeum L.	Awsaj	Phanerophyte	The aerial parts	Rheumatic and constipation	El-Mokasabi (2014)
Tamaricaceae					
Tamarix aphylla (L.) H.Karst.	Torfa	Phanerophyte	new branches	The branches are used to treat gonorrhea, skin diseases,	Mukassabi *et al.*(2017)
Zygophyllaceae					
Peganum harmala L.	Harmal	Chamaephyte	Seeds	Treatment for renal stones and arthritis.	El-Mokasabi (2014)

According to Table 2, the dominant life forms of the therapeutic plants in the examined region were Chamaephytes (25%) with nine species, and this is due to their ability to thrive under elevated temperatures, the arid summer, and chilly winter typical of the Mediterranean climate that characterizes the study area (Archibold, 1995; Baker, 1974; Shaltout *et a*l.,2018). Similarly study of (Ali *et al.*, 2024) indicated that the short perennial plants Chamaephytes widespread in different parts of the Butnan region. most Chamaephytes plants are low-growing shrubs with short shoots and tips close to the ground to enable them to withstand adverse conditions. Chamaephytes were likewise regarded as prevalent in an examination of herbal remedies in Wadi Al-Kuf. as evidenced by their percentage of 24.3% (Al-Traboulsi & Alaib, 2021).

Table (2). Life forms of medical species and Percentage it includes**.**

Life form	No. of species	Percentage%
Chamaephytes	9	25
Hemicryptophytes	8	22.3
Phanerophytes	7	19.4
Therophytes	7	19.4
Geophytes	5	13.9

Conclusion:

More phytochemical research and documentation of the therapeutic plants utilized in traditional Libyan medicine ought to be promoted or suggested. Like other plant species in Libya, medicinal plants are under threat from biodiversity loss brought on by worldwide climate alteration, excessive grazing, deforestation, and timber harvesting. Projects aimed at protecting and propagating plant biodiversity, particularly Libya's medicinal and aromatic plants, need to be supported.

Conflict of interest: The authors declare that there are no conflicts of interest

References:

Ali, A. S., Abbas, M. F., Rahil, R. O., & El-Barasi, Y. M. (2024). Evaluation of vegetation characteristics and plant biodiversity in the Western Sahl Basin area (Al-Butnan Plateau-Marmarica) in northeastern Libya. African Journal of Advanced Pure and Applied Sciences (AJAPAS), 110-121. [In Arabic].

Ali, S.I., Jafri, S.M. (1977). Flora of Libya. Flora of Libya. Tripoli (Libya) Department of Botany, Faculty of Science, Tripoli University (formerly Al-Fateh University Vols. 1 24.

Al-Mayah, A. A. A., & Taher, W. M. (2013). Medicinal plants and herbal healing. Beirut, Lebanon: Al-Basaer Press.

Al-Shaeri, M.S. (2002). Natural vegetation cover in the northeastern coast (Al-Butnan Plateau). Al-Thawra Press. [In Arabic].

Al-Traboulsi, M., & Alaib, M. A. (2021). A Survey of Medicinal Plants of Wadi Al-Kuf in Al-Jabal Al-Akhdar, Libya. Natura Croatica: Periodicum Musei Historiae Naturalis Croatici, 30(2), 389-404.

Archibold, O. W. (1995). Ecology of world vegetation. Chapman & Hall London.

Arwag, O. A. F. (2022). The natural vegetation cover of Al-Dafna plateau in Northeast Tobruk, Libya. The Libyan International Journal, 1-31.

Arwag, O. A. F. (2025). Floristic study and plant diversity of Wadi Abo Alakmal basin west Tobruk city in North-eastern Libya. Bani Waleed University Journal of Humanities and Applied Sciences. 10(2), 356-371.

Baker, H. G. (1974). The evolution of weeds. Annual review of ecology and systematics, 5(1), 1-24.

Boulos, L. (1972). Our present knowledge on the Flora and vegetation of Libya bibliography. Webbia, 26(2), 365-400.

Boulos, L. (1999). Flora of Egypt (Azollaceae- Oxalidaceae). Vol. 1, Al-Hadara Pub., Cairo,Egypt.

Boulos, L. (2000). Flora of Egypt (Geraiaceae-Boraginaceae). Vol. 2, Al-Hadara Pub., Cairo,Egypt.

Boulos, L. (2002). Flora of Egypt (Verbenaceae-Compositae). Vol. 3, Al-Hadara Pub., Cairo,Egypt.

Boulos, L. (2005). Flora of Egypt (Monocotyledons). Vol. 4, Al-Hadara Pub., Cairo, Egypt.

El-Darier, S. M., & El-Mogaspi, F. M. (2009). Ethnobotany and relative importance of some endemic plant species at Al-Jabal Al-Akhdar area (Libya). World Journal of Agricultural Sciences, 5(3), 353-360.

El-Gadi, A. & El-Mughrabi, M. (1999). Usages of some plants in Libyan folk medicine. III. Dar Al-Hekma. Tripoli, Libya.

El-Gadi, A., & Bashaina, S. M. A. (1997). Libyan Folk Medicine. Dar El-Hkima, Tripoli, Libya.

El-Gadi, A., & El-Taife, A.(1989). Flora of Libya: Pteridophytes. Al Faateh University, Faculty of Science, Department of Botany.

El-Mokasabi, F. (2014). The state of the art of traditional herbal medicine in the eastern mediterranean

coastal region of Libya. Middle East J Sci Res, 21(4), 575-582.

Heikal, M. S., & Omar, A. A. (1993). Medicinal and aromatic plants: Their chemistry, production, and benefits. Alexandria: Monshaat El Maaref.

Jafri, S. M., & El-Gadi, A. A. (Eds) (1977-1993). Flora of Libya. Department, Faculty of Sci., Tripoli Univ., Libya.

Jafri, S.M., & El-Gadi, A. (1986). Flora of Libya. Department, Fac ulty of Sci., Tripoli Univ., Libya .Vols. 25–144.

Kotb, F. (1985). Medicinal plants m Libya Arab Encyclopedia House. Libya, and, 830.

Louhaichi, M., Salkini, A. K., Estita, H. E., Belkhir, S. (2011). Initial assessment of medicinal plants across the Libyan Mediterranean coast. Advances in Environmental Biology, 5, 359-370

Motaleb, M. A., Hossain, M. K., Sobhan, I., Alam, M. K., Khan, N. A., & Firoz, R. (2011). Selected medicinal plants of Chittagong hill tracts.

Mukassabi, T. A., Thomas, P. A., and Elmogasapi, A. (2017) 'Medicinal plants in Cyrenaica, Libya: existence and ex tinction', Biological Diversity and Conservation, 10(2), pp. 183 192.

Shaltout, K., Ahmed, D., Diab, M. & El-Khalafy, M. (2018). Re-assessment of near-endemic taxa in the Egyptian flora. Taeckholmia 38 (1): 61-83. DOI: 10.21608/TAEC.2018.11903

Vasisht, K., & Kumar, V. (2004). Compendium of medicinal and aromatic plants, Vol. 1. Africa. United Nations Industrial Development Organization and the International Centre for Science and High Technology (ICS-UNIDO), Trieste.

Ying, F., Lei, J. Q., Xu, X. W., & Pan, B. R. (2013). Composition and characteristics of Libyan flora. Archives of biological sciences, 65(2), 651-657.