

A field study of some plants of medicinal and economic importance in Wadi Feiran, South Sinai, Egypt

M. Nasseib, Mahmoud, AlBaraa. S. Elsaied, Ramadan I. Bedair, and A. M. Hamed

Botany and Microbiology Department, Faculty of Science, Al-Azhar University, Cairo, Egypt.

* Corresponding author E-mail: (mahmod_nasseib@azhar.edu.eg)

ABSTRACT

For thousands of years, nature served as a source for therapeutic substances, and a remarkable number of modern drugs have been identified from natural sources. Since the beginning of time, higher plants have been important in the preservation of human health as sources of therapeutic chemicals. The pharmaceutical industry's drug development programs heavily rely on natural products, which are the source of more than 50% of all contemporary clinical medications. One of the biggest issues facing many countries, particularly developing countries, is the problem of expensive and insufficient medicine supplies. So, one of the key options to solve this problem is traditional plant-based medicine. Therefore, it is important to protect these plants and their genetic heritage. A total of 100 species of economical and medicinal importance were recorded in Wadi Feiran, South Sinai, Egypt. Families with the most representation in the study area were Poaceae, Asteraceae, and Amaranthaceae. The flowering branches and leaves are the most used plant parts in addition to the whole plant. The most medicinal and economical uses of the recorded species include grazing, fuel wood, aromatic sources, diuretics, analgesics for stomach and abdominal pain, treatment wounds, skin diseases and aromatic sources. Many of these species have multi medicinal and economic benefits.

Keywords: Medicinal plants; Wadi Feiran; south Sinai.

INTRODUCTION

Plants have been employed by man as a source of medicine throughout his historical evolution since his initial emergence on earth. The foundation of folklore medicine served as the primary source for discovery of novel medicines from medicinal plants (Elkhawas et al., 2022 and Newman et al., 2000). Traditional medicines account for around 40% of all medical usage in China and in Iran, which contains 900 species of plants, many of them are medicinal. (Mozaffarian, 1991; Zaeifi, 2001 and Soltanipoor, 2005). Medicinal plants are used by approximately 80% of the world's population for healthcare requirements (WHO, 2007).

The significance researches of medicinal plants are not enough. Since the therapeutic and commercial value of about 500,000 plant species throughout the world has not yet been established, the future of medicinal plants (Elzoghbiy et al., 2022 and Singh, 2015) studies on medicinal plants have revealed that most of them have significant antioxidant activity because they are beneficial in the treatment and prevention of diseases for conventional medicine, and synergistic medicine (Hassan, 2012; Rafieian-Kopaie and Baradaran, 2013 and Mekky et al., 2023).

According to their papyri, the ancient Egyptians utilized a wide variety of plants in

their medicines. There were many of these such as frankincense, linseed, castor oil, aloe, senna, henna, myrrh, and thyme. The ancient Egyptians also consumed a lot of garlic and onions because they thought they could treat respiratory and digestive issues. This was demonstrated by the presence of garlic cloves in Tutankhamun's tomb (Alshawwa et al., 2022 and Abou El-Soud, 2010).

According to Täckholm (1974) and Boulos (2000), there are many kinds of medicinal and aromatic plants in Egypt, and they are both abundant and diverse. All plant parts, including roots, rhizomes, flowers, leaves, fruits, seeds, and oils, were used to make medicines that were either orally or applied topically (Haggag, 1997).

Many Egyptian medicinal species have importance as clinical remedies particularly for human beings residing within the remote desolate tract areas. Plant species had been used to treat many diseases e.g., diabetes, skin, liver functions, respiratory, blood and nervous systems. Of those plants the most commonly used are *Capparis spinosa*, *Thymelaeya hirsuta*, *Nerium oleander*, *Urginea maritima*, *Balanites aegyptiaca*, *Peganum harmala* and *Citrullus colocynthis* (Boulos, 1983). Most of the medicinal plant substances used with inside the conventional folk medicinal drug in Egypt, offered at local herb shops, are gathered from

wasteland and mountains e.g., Saint Katherine region (El-Demerdash, 2001).

The aim of this study is to conduct a field study of some plants of economic and medicinal importance in Wadi Feiran, South Sinai, with an explanation of the used plant parts and their different uses.

Study area

The longest and widest wadi in southern Sinai is Wadi Feiran. It rises at a height of around 2500 meters above sea level from the steep mountains that surround the Monastery of Saint Katherine. About 165 km south of El-Shatt, it drops sharply to the north before turning to the west and coming to an end at the Suez Gulf (Zahran and Willis, 1992). The study area is in the Wadi Feiran region, between latitudes 28° 20' and 29° 00' N and longitudes 33° 20' and 34° 00' E. Its elevation ranges from 140 to 1350 meters above sea level (Fig. 1).

MATERIALS AND METHOD

The vegetation of Wadi Feiran, South Sinai, Egypt, was represented by 63 different stands in total. The study area's flora diversity was investigated. From the study area, the plants were collected from January 2021 to September 2022. All plant species were identified according to Täckholm (1974) and Boulos (1999–2009). Voucher herbarium specimens were incorporated in the herbarium of the Department of Botany, Faculty of Science (Boys), Al-Azhar University. Creating a study area map using ESRI Arc GIS version 10.8 software.

RESULTS AND DISCUSSION

In Wadi Feiran, about 100 species from 35 families with economic and medicinal importance were recorded. Poaceae, Asteraceae, and Amaranthaceae were the most common families with 12 species (12 %), 9 species (9 %) and 8 species (8 %), respectively. Fabaceae and Brassicaceae were represented by 7 % (7 species each). Zygophyllaceae was represented by 6 % (6 species), Solanaceae and Lamiaceae were represented by 5 % (5 species each). Asclepiadaceae, Cleomaceae, Caryophyllaceae and Boraginaceae were represented by 3 % (3 species each). Six families (Cucurbitaceae, Scrophulariaceae, Capparaceae, Euphorbiaceae, Geraniaceae and Tamaricaceae) were represented by 2 % (2 species each). While Seventeen families were represented by a single species (Table 1, Fig. 2).

Flowering branches were the most plant used parts, followed by leaves and whole plant, then seed, fruits, roots, rhizomes and finally latex (Table 1, 2 and Fig. 3).

A total of 100 species of great medical and economic importance were recorded in the study area. Among the most important of these uses are grazing, fuel wood, diuretic, stomach, and abdominal pain (Table 1 and 3).

In the study area, there are many plants of medical and economic importance, some of which are endemic to South Sinai, and some of which are rare and very rare (Täckholm, 1974). one of the endemic plants in South Sinai, (*Bufoia multiceps*), was recorded in the current study. It is one of the plants that is in danger of going extinct because of a variety of conditions, such as natural disasters (such drought and climate change that causes floods) and overgrazing by animals and excessive plant gathering (IUCN, 2018). Due to its efficacy in treating diseases like intestinal issues in sheep and goats, this plant has medical importance (Pieroni et al. 2006).

The rare plant (*Blepharis edulis*) is one of the species that was recorded in the current study. and this plant is used medicinally to treat liver, spleen, and pulmonary diseases (Youssef, 2013). (*Gomphocarpus sinaicus*), which is used to treat hemorrhagic, rhinorrhagia, and metrorrhagic diseases according to (Youssef, 2013), is one of the rare plants that is also recorded in the current study. Among the rare plants that were also recorded in the current study is (*Cleome droserifolia*), which is used medically in the treatment of urinary tract pains, diabetes, wounds, and antimicrobial (Mahmoud and Gairola, 2013). (*Cleome arabica*), which is used as a tonic and appetizer, is one of the rare plants that were also recorded in the current study (Youssef, 2013). (*Pseudodictamnus undulatus*), which have Antitumor activity and Insecticidal activity according to (Rosselli et al., 2019), is one of the rare plants that were also recorded in the current study. (*Moringa peregrina*), which is used as ben oil for cosmetics according to (Mahmoud and Gairola, 2013), is one of the rare plants that were also recorded in the current study. (*Hyoscyamus boveanus*), which is used for cough treatment according to (Bailey and Danin, 1981) is one of the rare plants that were also recorded in the current study. One of the species that has been identified in the study area is a very rare plant called (*Salvia sclarea*) that is used as an antiseptic and to heal small wounds (Bellakhdar, 1978). A very rare plant (*Matthiola arabica*) is one of the species

that have been recorded in the study area. This plant is used to treat anemia (Tounekti et al., 2019). One of the species that has been identified in the study area is a very rare plant called (*Papaver decaisnei*). It is utilized as an antioxidant and anticancer (Jabbar et al., 2022).

Several authors from all over the world have studied medicinal plants such as Fourment and Roques (1941), Keys (1976), Schauenberg and Paris (1977), Bellakhdar, (1978), Namukobe et al. (2011), Bidak et al., (2015), Singh, (2015) and Shivakoti and Ramesh (2015). In several countries, a lot of authors have studied medicinal plants. Fourment and Roques (1941) recorded medicinal and aromatic plants in Algeria. Fournier (1948) studied medicinal plants in France, traditional medicine is widely used in China. Numerous Chinese herbs that were used in traditional medicine were documented by Keys (1976). In Iran, many reports mentioned the importance of using traditional medicine to treat many diseases such as Mozaffarian, (1991), El-Ghazali et al., (2010) studied traditional medicinal plants in Al-Rass province, Saudi Arabia, In Uganda local communities relies heavily on traditional medicine to treat many diseases (Namukobe et al., 2011) and Youssef (2013), who studied medicinal and non-medicinal uses of some plants found in the middle region of Saudi Arabia.

In Egypt, there are many studies that discussed medicinal plants and their role in treating many diseases; Egyptian medicinal plants development of plant-based medicines (El-Demerdash, 2001). Ducros, (1930), Mahmoud and Gairola, (2013), El Mesallamy et al., (2021). Bailey and Dani (1981) studied the plants used medicinally and economically by Bedouins in Sinai. Hassan (2005) recorded the medicinal plants in Siwa Oasis and obliterated oases surrounding Siwa. El-Saied et al. (2018), recorded the medicinal plants in El-Menoufia Governorate, Egypt. Egypt. El-Zayat et al. (2021), who investigated the antibacterial and antioxidant properties of certain traditional Egyptian medicinal plants.

In Egypt, there is a considerably high biodiversity as well as a variety of medicinal and economic species. Although the export of raw materials derived from these plants aids in the improvement of national economic conditions, many pharmaceuticals must also be produced using these raw materials. Future integrated studies on medicinal plants should be conducted in order to increase their cultivation in vivo and in vitro. Even though

wild plants have numerous medicinal uses in traditional medicine, they should not be eaten fresh without first consulting a specialist in traditional medicine.

CONCLUSION

In the current study, it was noted that there are 100 plant species of great medical and economic importance. According to the IUCN, one of these endemic plants in South Sinai is considered a threatened species. There are also many rare and very rare plants, which have great medical and economic importance. The two most common families were Poaceae and Asteraceae. The flowering branches of plants are the most widely used parts. Grazing, fuel, wood, diuretics, the treatment of urinary diseases, the treatment of stomach and abdominal pain, the treatment of wounds and the treatment of skin diseases are some of the most useful and economical applications of the species that have been recorded.

REFERENCES

- Abdel-Ghani, A., Hassan, H., Elshazly, A.M. 2013: Phytochemical and biological study of *Malva parviflora* L. grown in Egypt. *Zagazig Journal of Pharmaceutical Sciences*, 22(1), 17-25.
- Abou El-Soud, N. 2010: Herbal medicine in ancient Egypt. *Journal of Medicinal Plants Research*, 4: 82-86.
- Ahmed, A.F., Wen, Z.H., Bakheit, A.H., Basudan, O.A., Ghabbour, H.A., Al-Ahmari, A., Feng, C.W. 2022: A Major Diplotaxis harra-Derived Bioflavonoid Glycoside as a Protective Agent against Chemically Induced Neurotoxicity and Parkinson's Models; In Silico Target Prediction; and Biphasic HPTLC-Based Quantification. *Plants*, 11(5), 648.
- Ahmed, O.H., Hamad, M.N., Jaafar, N.S. 2017: Phytochemical investigation of *Chenopodium murale* (Family: Chenopodiaceae) cultivated in Iraq, isolation and identification of scopoletin and gallic acid. *Asian J Pharm Clin Res*, 10(11), 70-77.
- Al-Jaber, N.A. 2011: Phytochemical and biological studies of *Sisymbrium irio* L. Growing in Saudi Arabia. *Journal of Saudi Chemical Society*, 15(4), 345-350.
- Al-Joufi, F.A., Jan, M., Zahoor, M., Nazir, N., Naz, S., Talha, M. 2022: *Anabasis articulata* (Forssk.) Moq: A good source of phytochemicals with antibacterial, antioxidant, and antidiabetic potential. *Molecules*, 27(11), 3526.
- Al-Said, M.S., Tariq, M., Al-Yahya, M.A., Rafatullah, S., Ginnawi, O.T., Ageel, A.M. 1990: Studies on *Ruta chalepensis*, an ancient medicinal herb still used in traditional

- medicine. *Journal of Ethnopharmacology*, 28(3), 305-312.
- Alshawwa, S.Z., Mohammed, E.J., Hashim, N., Sharaf, M., Selim, S., Alhuthali, H.M., Elharrif, M.G. 2022: In Situ Biosynthesis of Reduced Alpha Hematite (α -Fe₂O₃) Nanoparticles by Stevia Rebaudiana L. Leaf Extract: Insights into Antioxidant, Antimicrobial, and Anticancer Properties. *Antibiotics*, 11(9), 1252.
- Alshehri, S.A., Wahab, S., Abullais, S.S., Das, G., Hani, U., Ahmad, W., Vasudevan, R. 2021: Pharmacological Efficacy of Tamarix aphylla: A Comprehensive Review. *Plants*, 11(1), 118.
- Al-Snafi, A.E. 2015: The nutritional and therapeutic importance of Avena sativa-An Overview. *International Journal of Phytotherapy*, 5(1), 48-56.
- Al-Snafi, A.E. 2017: Therapeutic potential of Erodium cicutarium-A review. *INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES*, 4(2), 407-413.
- Ari, S., Temel, M., Kargioğlu, M. 2015: Ethnobotanical uses of Phragmites australis in Afyonkarahisar Province of Western Anatolia (Turkey). *GLOBAL JOURNAL FOR RESEARCH ANALYSIS*, 4(6), 179-181.
- Ayensu, E.S. 1979: Plants for medicinal uses with special reference to arid zones. In: Goodin, J.R. Northington, D.K. (eds.). *Arid land plant resources*. Lubbock, Texas, International Center for Arid and Semi-Arid Land Studies, 117-178.
- Bailey, C., Danin, A. 1981: Bedouin plant utilization in Sinai and the Negev. *Economic Botany*, 35(2), 145-162.
- Bellakhdar, J. 1978: Médecine traditionnelle et toxicologie ouest-sahariennes: contribution à l'étude de la pharmacopée Marocaine. Rabat, Éditions Broché Techniques Nord-Africaines, 357 p.
- Benchelah, A.C., Bouziane, H., Maka, M., Ouahes, C. 2000: Fleurs du Sahara. Voyage et ethnobotanique avec les touaregs du Tassili. Ed.IbisPress, Paris. 255 p.
- Bidak, L., Kamal, S., Halmy, M., Heneidy, S. 2015: Goods and services provided by native plants in desert ecosystems: Examples from the northwestern coastal desert of Egypt. *Global Ecology and Conservation*, 3: 433-447.
- Boulos, L. 1966: Flora of the Nile region in Egyptian Nubia. *Feddes Repertorium*, 73: 184-215.
- Boulos, L. 1983: *Medicinal Plants of North Africa*. Reference Publication, Inc. 218 St. Clair River Drive, Box 344. Algonac, Michigan 48001. 286 p.
- Boulos, L. 1999: Flora of Egypt. vol. I (Azollaceae–Oxalidaceae). A1-Hadara Publishing, Cairo, Egypt, 419 p.
- Boulos, L. 2000: Flora of Egypt. vol. II (Geraniaceae–Boraginaceae). A1-Hadara Publishing, Cairo, Egypt, 352 p.
- Boulos, L. 2002: Flora of Egypt. vol. III (Verbenaceae–Compositae). A1-Hadara Publishing, Cairo, Egypt, 373 p.
- Boulos, L. 2005: Flora of Egypt. vol. IV Monocotyledons (Alismataceae–Orchidaceae). A1-Hadara Publishing, Cairo, Egypt, 617 p.
- Boulos, L. 2009: *Flora of Egypt Checklist* (revised annotated ed.). A1-Hadara Publishing, Cairo, Egypt, 410 p.
- Ducros, A. 1930: Essai sur le droguier populaire arabe de l'inspection des pharmacies du Caire. *l'Institut Français D'archéologie Orientale*. Egypt, 15: iviii, 1-162, pl. I-IX.
- Eddouks, M., Maghrani, M., Lemhadri, A., Ouahidi, M.L., Jouad, H. 2002: Ethnopharmacological survey of medicinal plants used for the treatment of diabetes mellitus, hypertension and cardiac diseases in the south-east region of Morocco (Tafilalet). *Journal of ethnopharmacology*, 82(2-3), 97-103.
- El Mesallamy, A.M.D., Mohamed, E.I., Sarhan, M.A.M., Hussein, S.A.M. 2021: Chemical and Biological Activities of Deverra Triradiata Hochst. Ex. Boiss. Aerial Parts from St.Catherine, Southern Sinai, Egypt. *Egypt. J. Chem.* 64, 1387-1394.
- El-Amier, Y., Abdelghany, A., Abed Zaid, A. 2014: Green synthesis and antimicrobial activity of Senecio glaucus mediated silver nanoparticles. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 5 (5): 631-642.
- El-Demerdash, M. 2001: Medicinal plants of Egypt. Development of plant-based medicines: conservation, efficacy, and safety, 69-93.
- El-Gazzar, N.S., Abdallah, R.M., Hammada, H.M., Sallam, S.M. 2022: Chemical constituents and biological activities of genus Lotus: An updated review. *Records of Pharmaceutical and Biomedical Sciences*, 6(2), 147-162.
- El-Ghazali, G.E., Al-Khalifa, K.S., Saleem, G.A., Abdallah, E.M. 2010: Traditional medicinal plants indigenous to Al-Rass province, Saudi Arabia, *Journal of Medicinal Plants Research*, vol. 4, no. 24, pp. 2680-2683.
- Elkhawas, I.A., Hamed, A.M., Elhaw, M.H., Eman, M., Elsouly, Mekky, A.E. 2022: Study of phytochemical analysis and antimicrobial activity of ethanolic extract of Nigella Sativa L. and Matricaria Chamomilla L. *Al-Azhar Journal of Agricultural Research*, 47(2), 38-51.
- El-Naggar, E.M.B., Bartosikova, L., Zemlicka, M., Svasdlenka, E., Robiskova, M., Strnadova, V.,

- Necas, J. 2005: Antidiabetic effect of *Cleome drosserifolia* aerial parts: Lipid peroxidation-induced oxidative stress in diabetic rats. *Acta Vet Brno*, 74, 347-352.
- El-Newary, S.A., Afifi, S.M., Aly, M.S., Ahmed, R.F., El Gendy, A.E.N.G., Abd-ElGawad, A.M., Elshamy, A.I. 2021: Chemical profile of *Launaea nudicaulis* ethanolic extract and its antidiabetic effect in streptozotocin-induced rats. *Molecules*, 26(4), 1000.
- El-Saied, A., Khafagi, O., Marei, A., Bedair, R. 2018: Medicinal and economic plants in El-Menoufia Governorate, Egypt. *Egypt. J. Biomed. Sci*, 52, pp.55-73.
- El-Toumy, S.A., El-Sharabasy, F.S., Ghanem, H.Z., El-Kady, M.U., Kassem, A.F. 2011: Phytochemical and pharmacological studies on *Zilla spinosa*. *Austr J Basic Appl Sci*, 5, 1362-1370.
- El-Zayat, M.M., Eraqi, M.M., Alfaiz, F.A., Elshaer, M.M. 2021: Antibacterial and antioxidant potential of some Egyptian medicinal plants used in traditional medicine. *Journal of King Saud University-Science*, 33(5), 101466.
- Elzoghbiy, A.Sh., Mansour, M., Elhaw, M. H.M., Mekky, A.E. 2022: Phytochemical Analysis Of Pomegranate Peel Extract (Ppe) With The Evaluation Of Its Efficacy As Anti-Rancidity Of Oils, Anti-Bacterial And Anti-Candida Agent. *Al-Azhar Medical Journal*, 51(3), 1851-1866.
- Eman, M., Abdel-Haleem, D.R., Salem, M.M., Abdel-Hafez, L.J.M., Latif, R.R.A., Farag, S.M., El Raey, M.A. 2021: Phytochemical profiling of *Lavandula coronopifolia* Poir. aerial parts extract and its larvicidal, antibacterial, and antibiofilm activity against *Pseudomonas aeruginosa*. *Molecules*, 26(6), 1710.
- Fahmi, A.A., Abdur-Rahman, M., Naser, A.F.A., Hamed, M.A., Abd-Alla, H.I., Shalaby, N.M., Nasr, M.I. 2019: Chemical composition and protective role of *Pulicaria undulata* (L.) CA Mey. subsp. *undulata* against gastric ulcer induced by ethanol in rats. *Heliyon*, 5(3), e01359.
- Fatima, I., Kanwal, S., Mahmood, T. 2019: Microbiostatic, antioxidative and cytotoxic potentiation of some grasses of Bahawalpur, Pakistan. *Journal of Traditional Chinese Medicine*, 39(04), 482-491.
- Fourment, P., Roques, H. 1941: *Repertoire des plantes medicinales et aromatiques d'Algerie*. Documents et Renseignements Agricoles. Vol., 61. Collection du Centenaire de l'Algerie, Alger, 159 p.
- Fournier, P. 1948: *Le livre des plantes médicinales et vénéneuses de France*. 3 vol. Lechevalier: Paris, 128 p.
- Fujiki, H., Suganuma, M., Imai, K., Nakachi, K. 2002: Green tea: cancer preventive beverage and/or drug. *Cancer letters*, 188(1-2), 9-13.
- Ghazanfar, S.A. 1994: *Handbook of Arabia Medicinal Plant*. Boca Raton, Ann Arbor (CRC), London, pp: 83-86.
- Gheraissa, N., Chemsas, A.E., Elsharkawy, E.R., Cherrada, N. 2022: Phenolic compound profile, and evaluation of biological properties of *Bassia muricata* (L.) Asch. aerial part. *International Journal of Secondary Metabolite*, 9(3), 335-347.
- Haggag, M.Y. 1997: *Herbal Medicine in Egypt. Wild food and Non-food Plants*. In Identification of wild food and non-food plants of the Mediterranean Region. Proceedings of the first international workshop of MEDUSA Network. CIHEAM publications. Vol. 23. pp.: 45-55.
- Hassan, M. 2005: *Atlas flora of Siwa Oasis and obliterated oases surrounding Siwa, Egypt*. Regional Council for Research and Extension, 200 p.
- Hassan, R. 2012: Medicinal plants (importance and uses). *Pharmaceutica Analytica Acta*, Volume 3 (10): 1000e139.
- Hossain, S.J., El-Sayed, M., Aoshima, H. 2009: Antioxidative and anti- α -amylase activities of four wild plants consumed by pastoral nomads in Egypt. *Advances in Traditional Medicine*, 9(3), 217-224.
- Hussein, S.R., Abdel Latif, R.R., Marzouk, M.M., Elkhateeb, A., Mohammed, R.S., Soliman, A.A., Abdel-Hameed, E.S.S. 2018: Spectrometric analysis, phenolics isolation and cytotoxic activity of *Stipagrostis plumosa* (Family Poaceae). *Chemical Papers*, 72, 29-37.
- Jabbar, A.A., Abdullah, F.O., Abdulrahman, K.K., Galali, Y., Sardar, A.S. 2022: *Papaver decaisnei*: GC-MS alkaloids profiling, in vitro antioxidant, and anticancer activity. *Research Square*, 1-18.
- Jain, S.C., Agrawal, M., Sharma, R.A. 1996: The genus *Trigonella*-phytochemistry and biology. *Ancient science of life*, 16(2), 108.
- Jananie, R.K., Priya, V., Vijayalakshmi, K. 2011: Determination of bioactive components of *Cynodon dactylon* by GC-MS analysis. *New York Science Journal*, 4(4), 16-20.
- Keys, J. 1976: *Chinese herbs; their botany, chemistry, and pharmacodynamics*. With special sections on: Mineral drugs, drugs of animal origin, 300 Chinese prescriptions, toxic herbs. Charles E. Tuttle Company: Rutland, Vermont, and Tokyo, 388 p.
- Khelifi, A., Pecio, Ł., Lobo, J.C., Melo, D., Ayache, S.B., Flamini, G., Oliveira, M.B.P., Oleszek, W., Achour, L. 2021: Leaves of *Cleome amblyocarpa* Barr. and Murb. and *Cleome*

- arabica L.: Assessment of nutritional composition and chemical profile (LC-ESIMS/MS), anti-inflammatory and analgesic effects of their extracts [Journal of Ethnopharmacology](#) 269: 113739.
- Lakhdari, W., Dehliz, A., Acheuk, F., Mlik, R., Hammi, H., Doumandji-Mitiche, B., Chergui, S. 2016: Ethnobotanical study of some plants used in traditional medicine in the region of Oued Righ (Algerian Sahara). *Journal of Medicinal Plants Studies*. 4, 204-211.
- Mahmoud, T., Gairola, S. 2013: Traditional knowledge and use of medicinal plants in the Eastern Desert of Egypt: a case study from Wadi El-Gemal National Park. *Journal of Medicinal Plants*, 1(6), 10-17.
- Mekky, A.E., Emam, A.E., Selim, M.N., Abdelmouty, E.S., Khedr, M. 2023: Antibacterial and antineoplastic MCF-7 and HePG-2 characteristics of the methanolic (80%) clove (*Syzygium aromaticum* L.) extract. *Biomass Conversion and Biorefinery*, 1-12.
- Miri, A., Rashki, Z.G., Shaharaki, E. 2018: Evaluation of antioxidant and antimicrobial activity of *Spergularia marina* (L.) Griseb extract [Journal of Fundamental and Applied Sciences](#) Vol. 10 No. 65.
- Mozaffarian, V. 1991: A short survey of Hormozgan province vegetation (Iran). *Mitteilungen der Botanischen Staatssammlung München*, 30: 417-429.
- Namukobe, J., Kasenene, J., Kiremire, B., Byamukama, R., Kamatenesi-Mugisha, M., Krief, S., Kabasa, J. 2011: Traditional plants used for medicinal purposes by local communities around the Northern sector of Kibale National Park, Uganda. *Journal of Ethnopharmacology*, 136 (1): 236-245.
- Nauroy, J. 1954: Contribution a létude de la pharmacopée marocaine traditionnelle (drogues végétales). *Travaux du laboratoire de matière médicale de l'École supérieure de pharmacie de Paris*, 2 (152): 119-125.
- Newman, D.J., Cragg, G.M., Snader, K.M. 2000: The influence of natural products upon drug discovery. *Nat. Prod. Res.*, 17: 215-234.
- Ogunsuyi, O.B., Ademiluyi, A.O., Oboh, G. 2020: Solanum leaves extracts exhibit antioxidant properties and inhibit monoamine oxidase and acetylcholinesterase activities (in vitro) in *Drosophila melanogaster*. *Journal of basic and clinical physiology and pharmacology*, 31(3), 20190256.
- Oliver-Bever, B. 1986: *Medicinal Plants in Tropical West Africa*, Cambridge University Press, London. 375 PP.
- Othman, A., Amen, Y., Inoue, Y., Shimizu, K. 2022: Phytochemical Analysis, Anti-inflammatory, and Anticancer Activities of the Halophyte Herb *Bassia indica*. *Natural Product Communications*, 17(11), 1-8.
- Pieroni, A., Giusti, M.E., de Pasquale, C., Lenzarini, C., Censorii, E., Gonzales-Tejero, M.R., Sanchez-Rojas, C.P., Ramiro-Gutierrez, J.M., Skoula, M., Johnson, C., Sarpaki, A., Della, A., Paraskeva-Hadjichambi, D., Hadjichambis, A., Hmamouchi, M., El-Jorhi, S., El-Demerdash, M., El-Zayat, M., Al-Shahaby, O., Houmani, Z., Scherazed, M. 2006: Circum-Mediterranean cultural heritage and medicinal plant uses in traditional animal healthcare: a field survey in eight selected areas within the RUBIA project. *Journal of Ethnobiology and Ethnomedicine*, 2, pp.1-12.
- Rafieian-Kopaie, M., Baradaran, A. 2013: Plants antioxidants: From laboratory to clinic. *Journal of Nephropathology*, 2 (2): 152-153.
- Rizk, A.M., El-Ghazaly, G.A. 1995: *Medicinal and Poisonous Plants of Qatar*. Scientific and Applied Research Centre, University of Qatar, Modern Printing Press Ltd: Doha;1-249
- Rosselli, S., Fontana, G., Bruno, M. 2019: A review of the phytochemistry, traditional uses, and biological activities of the Genus *Ballota* and *Otostegia*. *Planta medica*, 85(11/12), 869-910.
- Safa, O., Soltanipoor, M., Rastegar, S., Kazemi, M., Dehkordi, K., Ghannadi, A. 2013: An ethnobotanical survey on hormozgan province, Iran. *Avicenna Journal of Phytomedicine*, 3 (1): 64-81.
- Said-Al Ahl, H.A., Hikal, W.M., Mahmoud, A.A. 2017: Biological activity of *Moringa peregrina*: a review. *American Journal of Food Science and Health*, 3(4), 83-87.
- Salama, S.A., Al-Faifi, Z.E., El-Amier, Y.A. 2022: Chemical Composition of *Reichardia tingitana* Methanolic Extract and Its Potential Antioxidant, Antimicrobial, Cytotoxic and Larvicidal Activity. *Plants*, 11(15), 2028.
- Salem, M.A., Farid, M.M., El-Shabrawy, M., Mohammed, R., Hussein, S.R., Marzouk, M.M. 2020: Spectrometric analysis, chemical constituents and cytotoxic evaluation of *Astragalus sieberi* DC. (Fabaceae). *Scientific African* :7, e00221.
- Schauenberg, P., Paris, P. 1977: *Guide to medicinal plants*. Guildford, Lutterworth Press, 349 p.
- [Seham, S., El-Hawary, Mahmoud, M. Mubarek., Rehab, A. Lotfy., Amany, A. Sleem. and Mona, M. Okba.](#) (2021): In vivo antidiabetic potential of standardized *Gymnocarpus decandrus* Forssk. Extract *J Diabetes Metab Disord.* (2):1129-1135.
- Shahrajabian, M.H., Sun, W., Cheng, Q. 2019: *Astragalus*, an ancient medicinal root in traditional Chinese medicine, a gift from silk

- road. International Journal of Agriculture and Biological Sciences, 3(06), 27-38.
- Shivakoti, C., Ramesh, K. 2015: Preliminary phytochemical screening of *Setaria verticillata*. Indo American Journal of Pharma Research, 5 (6): 2425- 2429.
- Singh, R. 2015: Medicinal plants: A review. Journal of Plant Sciences, 3 (1): 50-55.
- Sinha, A., Meena, A.K., Panda, P., Srivastava, B., Gupta, M.D., Padhi, M.M. 2012: Phytochemical, pharmacological and therapeutic potential of *Hordeum vulgare* Linn. -a review. Asian Journal of Research in Chemistry, 5(10), 1303-1308.
- Soltanipoor, M.A. 2005: Medicinal plants of the Geno protected area. Pajouhesh and Sazandegi, 68: 27-37
- Sutradhar, K., Tahsin, M.R., Ashrafi, S., Ferdousy, S., Akter, T., Aktar, F., Amran, M.S. 2022: Phytochemical, Biochemical and Pharmacological Properties of *Plantago ovata* (Ispaghula Husk)–A Review. Dhaka University Journal of Pharmaceutical Sciences, 21(2), 231-243.
- Täckholm, V. 1974: Students' Flora of Egypt. Cairo University, Printed by Cooperative Printing Company Beirut, 888 p.
- Tatli, I.I., Akdemir, Z.F. 2006: Traditional uses and biological activities of *Verbascum* species. FABAD Journal of Pharmaceutical Sciences, 31(2), 85-96.
- Tounekti, T., Mahdhi, M., Khemira, H. 2019: Ethnobotanical study of indigenous medicinal plants of Jazan region, Saudi Arabia. Evidence-based complementary and alternative medicine 1-46.
- Valderrábano, E.M., Gil, T., Heywood, V., Montmollin, B.D. 2018: Conserving Wild Plants in the South and East Mediterranean Region (IUCN, International Union for Conservation of Nature, 2018). <https://doi.org/10.2305/IUCN.CH.2018.21.en>.
- Walker, D.J., Lutts, S., Sánchez-García, M., Correal, E. 2014: *Atriplex halimus* L.: Its biology and uses. Journal of Arid Environments, 100, 111-121.
- World Health Organization. 2007: WHO monographs on selected medicinal plants, Volume 3 Geneva, 390 p.
- Wu, Q., Wang, M., Simon, J.E. 2003: Determination of isoflavones in red clover and related species by high-performance liquid chromatography combined with ultraviolet and mass spectrometric detection. J. Chromatogr. 1016, 195–209.
- Youssef, R.S. 2013: Medicinal and non-medicinal uses of some plants found in the middle region of Saudi Arabia. J Med Plants Res, 7(34), 2501-2513.
- Zaeifi, M. 2001: The flora of Hormozgan province. Research Center of Agriculture and Natural Resources Publications, Bandar Abbas, 87 p.
- Zahran, M.A., Willis, A.J. 1992: The Vegetation of Egypt. Chapman & Hall, London, 424 p.
- Zheng, Y., Yin, W., Lin, L., Du, S.S., Shan, T., Wang, Y. 2007: Advances in studies on *Panzeria alaschanica*. CHINESE TRADITIONAL AND HERBAL DRUGS, 38(9), 1434.

Table 1: Families, species, parts used, and the medical and economic importance of the plants under study

Family	Species	Part used	Economic and medicinal uses	References
Acanthaceae	<i>Blepharis edulis</i> (Forssk.) Pers.	Whole plant	Treating lung, diseases, liver, and spleen disorders.	(Youssef, 2013)
Aizoaceae	<i>Aizoon canariense</i> L.	Whole plant	It is widely used as an emetic in poisoning	(Bellakhdar, 1978)
Amaranthaceae	<i>Aerva javanica</i> (Burm.f.) Juss. ex Schult.	Whole plant	Toothache, snake, and insect's bites	(Youssef, 2013)
	<i>Anabasis articulata</i> (Forssk.) Moq.	Flowering branches	Grazing plants used in folk medicine to treat skin conditions such as eczema and other ailments, including diabetes, headache, and fever	(Bidak et al., 2015), (Al-Joufi, 2022)
	<i>Anabasis setifera</i> Moq.	Flowering branches	Used to treat parasites and leprosy.	(Bailey and Danin, 1981)
	<i>Atriplex halimus</i> L.	Flowering branches	Grazing plants, fueling wood and aromatic source and antacid powder	(Bidak et al., 2015), (D.I. Walker, et al 2014)
	<i>Bassia indica</i> (Wight) A.J.Scott	Flowering branches	Grazing plants and antitumor, inflammatory, anticholinesterase, and anti-tyrosinase	(Bidak et al., 2015), (Ahmed Othman, 2022)
	<i>Bassia muricata</i> (L.) Asch.	Flowering	Grazing plants and antioxidant,	(Bidak et al.,

		branches	antimicrobial, antidiabetic, and anti-inflammatory.	2015), (Gheraissa et al., 2022)
	<i>Chenopodium murale</i> (L.) S.Fuentes, Uotila & Borsch	Flowering branches	Aromatic source and as anthelmintic, stomachic, antispasmodic, diaphoretic, emmenagogues, amenorrhea, as an abortifacient and for the relief of asthma, catarrh, and migraine.	(Bidak et al., 2015), (OMER et al., 2017)
	<i>Suaeda aegyptiaca</i> (Hasselq.) Zohary	Leaves	Skin diseases, tooth, and gum infections, used as snuff for dizziness, headaches, hysteria, nausea, calming the nervous system and improving poor vision	(Tounekti et al., 2019), (Ghazanfar, 1994).
Apiaceae	<i>Deverra triradiata</i> Hochst.	Whole plant	Antitumor, hypoglycemic, and anti-inflammatory	(El Mesallamy et al., 2021)
Arecaceae	<i>Phoenix dactylifera</i> L.	Fruits	It is used as an antidiarrheal	(Bellakhdar, 1978)
Asclepiadaceae	<i>Calotropis procera</i> (Aiton) W.T.Aiton	Whole plant	Respiratory system and antibacterial	(Youssef, 2013)
	<i>Gomphocarpus sinaicus</i> Boiss.	Whole plant	Hemorrhagic, rhinorrhagia and metrorrhagia	(Youssef, 2013)
	<i>Pergularia tomentosa</i> L.	Whole plant	Skin diseases	(El-Ghazali et al., 2010)
Asphodelaceae	<i>Asphodelus tenuifolius</i> Cav.	Leaves	Used in massage against rheumatic pains. It is used for colds and hemorrhoids, a febrifuge and used for rheumatic pain. Seeds are also used as diuretic agent; healing wound and they are applied externally to ulcers and for inflamed part.	(Bellakhdar, 1978)
Asteraceae	<i>Achillea fragrantissima</i> (Forssk.) Sch.Bip.	Whole plant	Stomachache and anthelmintics.	(El-Zayat et al., 2021).
	<i>Artemisia herba-alba</i> Asso	Leaves	Antispasmodic	(Bailey and Danin, 1981)
	<i>Artemisia judaica</i> L.	Whole plant	Analgesic, antispasmodic	(Mahmoud and Gairola, 2013)
	<i>Launaea nudicaulis</i> (L.) Hook.f.	Flowering branches	Grazing plants, cuts, ulcers, swellings, bilious fever, eczema eruptions and rheumatism.	(Bidak et al., 2015) (El-Newary et al., 2021)
	<i>Nidorella pedunculata</i> Oliv.	Flowering branches	Diuretic	(Fourment and Roques, 1941)
	<i>Pulicaria undulata</i> (L.) C.A.Mey	Whole plant	Skin diseases, inflammation and as insect repellent.	(Tounekti et al., 2019), (Fahmi et al 2019)
	<i>Reichardia tingitana</i> (L.) Roth	Flowering branches	Grazing plants, antibacterial, antifungal, antidiabetic, anti-helminthic, immunostimulatory, and anticancer properties.	(Bidak et al., 2015), (Salama et al., 2022)
	<i>Senecio glaucus</i> L.	Whole plant	Antimicrobial activity.	(El-Amier et al., 2014)
	<i>Sonchus oleraceus</i> (L.) L.	Leaves	Anti-malaria.	(Namukobe et al., 2011)
Boraginaceae	<i>Heliotropium bacciferum</i> Forssk.	Whole plant	Skin and urinary diseases.	(Tounekti et al., 2019)
	<i>Heliotropium digynum</i> Asch. ex C.Chr.	Whole plant	Skin diseases, Liver pain and Diuretic.	(Tounekti et al., 2019)
	<i>Trichodesma africanum</i> (L.)	Leaves	Abdominal pain, mouth ulcers and	(Safa et al., 2013)

	Sm.		chest congestion	
Brassicaceae	<i>Diplotaxis acris</i> (Forssk.) Boiss.	Flowering branches	Grazing plants antioxidant, anti-inflammatory	(Bailey and Danin, 1981), (Atallah, F et al., 2022)
	<i>Diplotaxis harra</i> (Forssk.) Boiss.	Leaves	Used as a rub against scabies in animals	(Bellakhdar, 1978)
	<i>Eruca vesicaria</i> (L.) Cav.	Leaves	Stimulant, antiscorbutic and rubefacient	(Fourment and Roques, 1941)
	<i>Farsetia aegyptia</i> Turra.	Flowering branches	Grazing plants, antidiabetic, and antispasmodic, to treat rheumatic pain, and as a cooling medicine after repeated fever.	(Bidak et al., 2015), (Benchelah et al., 2000)
	<i>Matthiola arabica</i> Boiss.	Seed	Anemia treatment	(Tounekti et al., 2019)
	<i>Sisymbrium irio</i> L.	Flowering branches	Grazing plants, treat coughs and chest congestion, to relieve rheumatism, to detoxify the liver and spleen, and to reduce swelling and clean wounds.	(Bidak et al., 2015), (Nabila Abdul-Aziz, 2011)
	<i>Zilla spinosa</i> (L.) Prantl.	Flowering branches	Grazing plants and treatment of gall bladder and kidney stones and/or ailments, antifungal, anticancer, antirheumatic.	(Bidak et al., 2015) (El-Toumy et al., 2011)
Capparaceae	<i>Capparis cartilaginea</i> Decne.	Leaves	Rheumatism, joint pain and wounds.	(Safa et al., 2013)
	<i>Capparis spinosa</i> L.	Leaves	Joint, rheumatism and abdominal pain.	(Safa et al., 2013)
Caryophyllaceae	<i>Bufonia multiceps</i> Decne.	Whole plant	Treatment of digestive problems in sheep and goats.	(Pieroni et al. 2006)
	<i>Gymnocarpus decandrus</i> Forssk.	Flowering branches	Grazing plants and fuel wood, Antidiabetic, anti-inflammatory, analgesic and diuretic activities.	(Bidak et al., 2015), (Seham et al., 2021)
	<i>Spergularia marina</i> (L.) Besser	Flowering branches	Grazing plants antidiabetic, antioxidant, and diuretic effect.	(Bidak et al., 2015), (Miri et al., 2018)
Cleomaceae	<i>Cleome arabica</i> L.	Leaves	Tonic, stimulant and appetizer. diabetes, rheumatism, colic, pain, and digestive disorders.	(Youssef, 2013)
	<i>Cleome amblyocarpa</i> Barratte & Murb.	Flowering branches	Fuel wood and Aromatic source, diabetes, rheumatism, colic, pain and digestive disorders.	(Bidak et al., 2015), (Khlifi et al., 2021)
	<i>Cleome droserifolia</i> (Forssk.) Delile.	Leaves	Urinary tract pains, diabetes, wounds, and antimicrobial antioxidant, antidiabetic, and diuretic effect.	(Mahmoud and Gairola, 2013), (El-Naggar et al., 2005)
Cucurbitaceae	<i>Citrullus colocynthis</i> (L.) Schrad.	Flowering branches	Anti-leprosy, common cold, cough, asthma, bronchitis, jaundice, joint pain, cancer, toothache, wound, mastitis, and in gastrointestinal disorders such as indigestion, constipation, dysentery, gastroenteritis, colic pain and different microbial infection.	(Eddouks et al., 2002)
	<i>Cucumis prophetarum</i> L.	Fruits	Sexual diseases, liver diseases and stomach pain	(Youssef, 2013)

Ephedraceae	<i>Ephedra alata</i> Decne.	Leaves	Respiratory problems, hypertension, and body weakness	(Lakhdari et al., 2016)
Euphorbiaceae	<i>Chrozophora oblongifolia</i> (Delile) A.Juss. ex Spreng.	Leaves	Gastrointestinal tract Problems.	(Tounekti et al., 2019)
	<i>Euphorbia peplus</i> L.	Latex	Diuretic and treatment of some pulmonary diseases	(Fournier, 1948)
Fabaceae	<i>Astragalus sieberi</i> DC.	Flowering branches	Grazing plants and as, anti-viral immunostimulant, antiprotozoal wound healing, anti-inflammatory and possess cytotoxic activities.	(Bidak et al., 2015), (Salem, M.A et al., 2020)
	<i>Astragalus spinosus</i> (Forssk.) Muschl.	Flowering branches	Grazing plants and used in the treatment of diabetes, mellitus, nephritis, leukemia, uterine cancer, besides its tonic agent and diuretic effects.	(Bidak et al., 2015), (Shahrajabian, M et al., 2019)
	<i>Lotus hebranicus</i> Brand	Flowering branches	Grazing plants, anti-inflammatory, anti-platelet aggregation, anti-fungal antibacterial, estrogenic, hepatoprotective, anticancer and antioxidant activities.	(Bidak et al., 2015), (El-Gazzar, N et al., 2022)
	<i>Melilotus indicus</i> (L.) All.	Seed	Antispasmodic and Sexual diseases	(Nauroy, 1954)
	<i>Retama raetam</i> (Forssk.) Webb & Berthel.	Leaves	Used as a purgative and anthelmintic.	(Bellakhdar, 1978)
	<i>Trifolium resupinatum</i> L.	Flowering branches	Grazing plants, anti-cancer, cardiovascular disease, menopausal symptoms, and osteoporosis.	(Bidak et al., 2015), (Wu, Q et al., 2003)
	<i>Trigonella stellata</i> Forssk.	Flowering branches	Aromatic and carminative, antipyretic and anthelmintic colic, flatulence, dysentery, diarrhea dyspepsia with loss of appetite, chronic cough, dropsy, enlargement of liver and spleen, rickets, gout, and diabetes besides the insect repellent properties	(Bidak et al., 2015), (Jain, S et al., 1996)
Geraniaceae	<i>Erodium cicutarium</i> (L.) L'Hér.	Root	Toothache, anti-diarrhea, diuretic, stomachic, antihemorrhagic, typhoid fever drug.	(Safa et al., 2013), (Al-Snafi, 2017)
	<i>Erodium glaucophyllum</i> (L.) L'Hér.	Whole plant	Useful against diarrhea, astringent, allergy, and oxytocin., anti-inflammatory	(Al-Said et al., 1990), (Lakhdari et al., 2016)
Lamiaceae	<i>Lavandula coronopifolia</i> Poir.	Leaves	Stomachache, antioxidant, antimicrobial, α -glucosidase inhibitory, and hepatoprotective	(Mahmoud and Gairola, 2013), (Emam et al., 2021)
	<i>Pseudodictamnus undulatus</i> (Benth.) Salmaki & Siadati	Leaves	Antitumor activity and Insecticidal activity treatment of pelvic inflammation and chronic pelvic inflammation, edema, irregular menstruation, dysmenorrheal, amenorrhea, nephritis.	(Zheng, Y et al., 2007), (Rosselli et al., 2019)
	<i>Salvia aegyptiaca</i> L.	Whole plant	Eye diseases, diarrhea and blennorrhagia.	(Youssef, 2013)
	<i>Salvia sclarea</i> L.	Leaves	Used as an antiseptic and to heal small wounds. diarrhea, and for piles, and the whole plant is used in diarrhea, gonorrhoea, and	(Bellakhdar, 1978)

			hemorrhoids, eye diseases, and as an antiseptic, antispasmodic and stomachic.	
	<i>Teucrium polium</i> L.	Flowering branches	Abdominal pain and wound healing	(Safa et al., 2013)
Malvaceae	<i>Malva parviflora</i> L.	Whole plant	Grazing plants, cough, ulcers in the bladders, intestinal infections, colitis, tonsillitis, gastroenteritis, cholesterol and lipid-lowering, anti-hypertensive, antioxidant, analgesics, emollient, pectoral girdle, and arteriosclerosis antidandruff, demulcent, softening of tumors and abscess	(Rizk and El-Ghazaly, 1995), (Hassan, 2005 (Abdel-Ghani, A et al., 2013)
Menispermaceae	<i>Cocculus pendulus</i> (J.R.Forst. & G.Forst.) Diels.	Root	Antipyretic, treatment of intermittent fever and biliousness, antipyretic, diuretic, cholagogue, menstrual cycle troubles, internal parasites antibleorrhagic and rheumatic pain.	(Oliver, 1986), (Safa et al., 2013)
Moringaceae	<i>Moringa peregrina</i> (Forssk.) Fiori.	Seed	antimicrobial, antiviral, anticancer, antioxidant, immune-modulator, inflammation, gastrointestinal, hematological, cardiovascular, hepatic and renal disorders, diabetes and hypertension.	(Mahmoud and Gairola, 2013), (Said-Al Ahl, H et al., 2017)
Neuradaceae	<i>Neurada procumbens</i> L.	Flowering branches	Edible food	(Bidak et al., 2015)
Orobanchaceae	<i>Orobanche cernua</i> Loefl.	Whole plant	Antibacterial	(Mahmoud and Gairola, 2013)
Papaveraceae	<i>Papaver decaisnei</i> Hochst. & Steud. ex Elkan	Whole plant	Antioxidant, and Anticancer	(Jabbar et al., 2022)
Plantaginaceae	<i>Plantago ovata</i> Forssk.	Whole plant	Grazing plants, treatment of constipation and diarrhea associated with diverticulosis and irritable bowel syndrome, anti-cholesteric.	(Bidak et al., 2015), (Sutradhar et al., 2022)
Poaceae	<i>Avena barbata</i> Pott ex Link.	Flowering branches	Grazing plants, antioxidant, anti-inflammatory, dermatological, immunomodulatory, antidiabetic, gastrointestinal, hypolipidemic, neurological, and cardiovascular.	(Bidak et al., 2015) (Al-Snafi, 2015)
	<i>Bromus fasciculatus</i> C.Presl	Flowering branches	Grazing plants, anti-inflammatory and cancer preventives for humans r antifungal and antibacterial properties	(Bidak et al., 2015), (Fujiki, et al., 2002)
	<i>Cynodon dactylon</i> (L.) Pers.	Rhizomes	Diuretic, Decoctions of root are used in secondary syphilis and irritation of urinary organs. The plant is astringent, sweet, cooling, hemostatic, depurative, vulnerary, constipating, diuretic and tonic and is useful in impaired conditions of pitta and kapha, hyperdipsia, burning sensation, hematuria, hemorrhages, wounds, leprosy, diarrhea,	(Fourment and Roques, 1941), (Jananie et al., 2011)
	<i>Hordeum murinum</i> L.	Flowering	Grazing plants anti-inflammatory,	(Bidak et al.,

		branches	anti-lactagogue, diuretic, antioxidant, aphrodisiac, antiviral, antiprotozoal, astringent, demulcent, digestive, expectorant, febrifuge, antimutagenic, hypocholesterolemia, emollient, refrigerant, sedative, stomachic, tonic properties, used as a poultice for burns and wounds.	2015), (Sinha, A et al., 2012)
	<i>Imperata cylindrica</i> (L.) Raeusch.	Rhizomes	Diuretic, antipyretic and hemostatic	(Keys, 1976)
	<i>Lolium perenne</i> L.	Whole plant	Stopping diarrhea and hemorrhage	(Schauenberg and Paris, 1977)
	<i>Panicum turgidum</i> Forssk.	Flowering branches	Edible food and Grazing plants, used as a wound-dressing, antidiabetic.	(Hossain et al., 2009)
	<i>Phragmites australis</i> (Cav.) Trin. ex Steud.	Whole plant	Grazing plants, as diuretic. It is also used as antipyretic by the infusion method. It is also stated that it quenches thirst.	(Ari, S et al., 2015), (Hassan, 2005)
	<i>Polypogon monspeliensis</i> (L.) Desf.	Whole plant	Grazing plants, cytotoxic effect and a weak antioxidant as well as antimicrobial potentials.	(Fatima et al., 2019), (Hassan, 2005)
	<i>Schismus arabicus</i> Nees	Whole plant	Grazing plants	(Bidak et al., 2015)
	<i>Setaria verticillata</i> (L.) P.Beauv.	Whole plant	Anti-inflammatory, Antioxidant and Anticarcinogenic.	(Shivakoti and Ramesh, 2015)
	<i>Stipagrostis plumosa</i> (L.) Munro ex T. Anderson	Whole plant	Grazing plants, analgesic, anti-inflammatory and antioxidant activities in addition to cytotoxic activities	(Hussein et al., 2018), (Bailey and Danin, 1981)
Polygonaceae	<i>Rumex vesicarius</i> L.	Leaves	Constipation, bad digestion and as appetizer	(Mahmoud and Gairola, 2013)
Primulaceae	<i>Lysimachia arvensis</i> (L.) U.Manns & Anderb.	Flowering branches	Jaundices, diuretic, painful wounds	(Safa et al., 2013)
Resedaceae	<i>Ochradenus baccatus</i> Delile.	Whole plant	Back pain and fistula	(El-Ghazali et al., 2010)
Rhamnaceae	<i>Ziziphus spina-christi</i> (L.) Desf.	Leaves	Hypertension and antidiarrheal, antioxidant, anti-cancer.	(Mahmoud and Gairola, 2013)
Scrophulariaceae	<i>Kickxia aegyptiaca</i> (L.) Nabélek.	Flowering branches	antiviral activity against SARS-CoV-2 antioxidant and antibacterial	(Bidak et al., 2015)
	<i>Verbascum sinaiticum</i> Benth.	Seed	It is used as a prevention of eye diseases, antiviral, antimicrobial, antimalarial, antioxidant, anti-inflammatory, antinociceptive, antitumor, anticancer, cytotoxic, immunomodulatory, antiulcerogenic, antihepatotoxic, antihyperlipidemic, antitussive and anti-germination.	(Tatli, I. and Akdemir, Z. 2006) (Bellakhdar, 1978)
Solanaceae	<i>Datura stramonium</i> L.	Leaves	Cough treatment, antispasmodic, glaucoma, ant parkinsonism	(Ayensu, 1979)
	<i>Hyoscyamus boveanus</i> (Dunal) Asch. & Schweinf.	Leaves	Cough treatment treatment, antispasmodic, glaucoma.	(Bailey and Danin, 1981)
	<i>Hyoscyamus muticus</i> L.	Leaves	As cigarettes against asthma ant Parkinsonism, CNS stimulant.	(Boulos, 1966)
	<i>Lycium shawii</i> Roem. & Schult.	Leaves	Gastric ailments, wound healing.	(Safa et al., 2013)

	<i>Solanum americanum</i> Mill.	Flowering branches	anticholinesterase, anti-monoamine-oxidase, antioxidant characteristics that enhance their importance against neurodegenerative diseases.	(Ogunsuyi et al., 2020)
Tamaricaceae	<i>Tamarix aphylla</i> (L.) H.Karst.	Leaves	Wound infection, antioxidants, and Stomachache.	(El-Ghazali et al., 2010)
	<i>Tamarix senegalensis</i> DC.	Flowering branches	Grazing plants, antidiabetic, hypolipidemic, antifungal, antibacterial, and antioxidant.	(Alshehri et al., 2021)
Zygophyllaceae	<i>Peganum harmala</i> L.	Leaves	Used as antirheumatic, teeth pain and stomach problems.	(El-Zayat et al.,2021).
	<i>Tribulus terrestris</i> L.	Leaves	Diuretic, astringent, and bladder pains.	(Ducros, 1930)
	<i>Zygophyllum arabicum</i> (L.) Christenh. & Byng	Flowering branches	Grazing plants, fuel wood and edible food.	(Bidak et al., 2015)
	<i>Zygophyllum coccineum</i> L.	Fruit	Anthelmintic, diuretic	(Mahmoud and Gairola, 2013)
	<i>Zygophyllum glutinosum</i> (Delile)	Leaves	Skin disease, body weakness, and muscle spasm	(Lakhdari et al.,2016)
	<i>Zygophyllum simplex</i> L.	Leaves	Eye disorders, worm killing	(Safa et al., 2013)

Table 2: Number of species in relation to parts of the plant used

Part used	Number of species
Flowering branches	33
Whole plant	27
Leaves	27
Seed	4
Fruits	4
Rhizomes	2
Root	2
Latex	1

Table 3: Number of species in relation to medicinal and economic uses

Economic and medicinal uses	Number of species
Grazing	31
Fuel wood	12
Diuretic and treatment of urinary diseases	10
Stomach and abdominal pain	8
Wounds	7
Skin diseases	6
Aromatic source	4
Edible food	4
Respiratory and pulmonary diseases	4
Antimicrobial and Antibacterial activities	4
Rheumatic pains	4
Diarrhea	4
Sexual diseases	3
Liver diseases	3
Eye diseases	3
Antipyretic	2
Anti-inflammatory activities	2
Antitumor activity	4
Antioxidant activities	2
Hypertension	2
Toothache	2
Cough	1
Jaundice	1
Diabetes	1
Anemia	1
Malaria	1
Cosmetics	1
Aid digestion in sheep and goats	1



Figure 1: Location map of the 63 stands selected in Wadi Feiran.

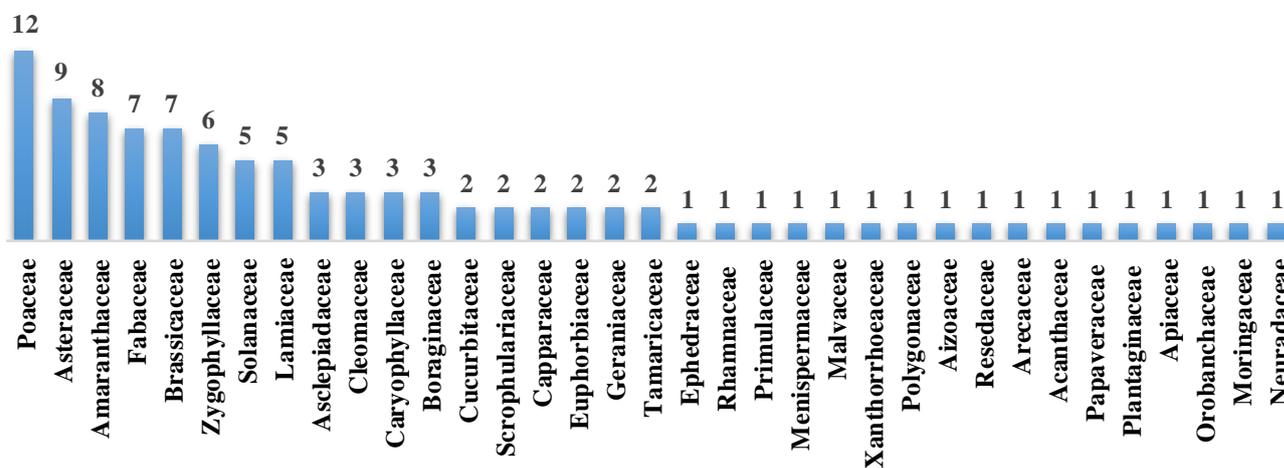


Figure 2: Graphical representation of Angiosperm Families According to the numbers of the economic and medicinal plant species collected from Wadi Feiran.

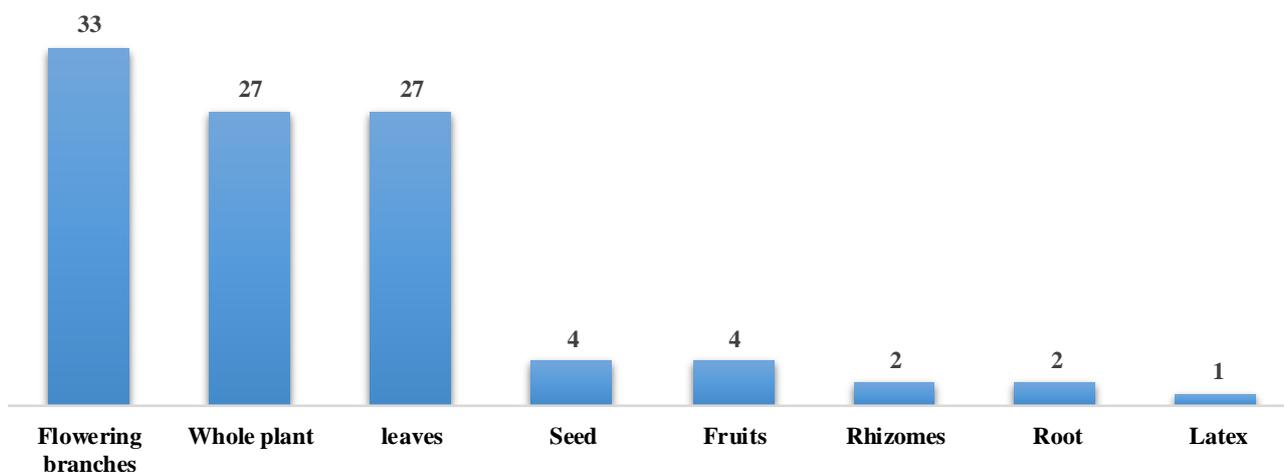


Figure 3: Used parts of plant species recorded in Wadi Feiran.



Photo 1: one of the medicinal plants photo (*Lycium shawii*) **Photo 2:** one of the medicinal plants (*Cocculus pendulus*)



Photo 3: Shows one medicinal plant (*Diplotaxis harra*) and one economic plant (*Diplotaxis acris*).

Photo 4: Shows one economic plant (*Astragalus spinosus*).



Photo 6: Goats and sheep Grazing at Wadi Feiran.



Photo 7: The research team and guide while collecting samples from Wadi Feiran.

دراسة ميدانية لبعض النباتات ذات الأهمية الطبية والاقتصادية في وادي فيران، جنوب سيناء، مصر

محمود نصيب محمود^{*}، البراء صلاح الدين السعيد، رمضان ابراهيم بدير، عبده مرعي حامد

قسم النبات والميكروبيولوجي، كلية العلوم فرع البنين، جامعة الأزهر، القاهرة-ن مصر

* البريد الإلكتروني للباحث الرئيسي: mahmod_nasseib@azhar.edu.eg

الملخص العربي

واحدة من أكبر القضايا التي تواجه العديد من البلدان، وخاصة البلدان النامية، هي مشكلة النقص الكبير في الغذاء والدواء. لذا، فإن أحد الخيارات الرئيسية لحل هذه المشكلة هو الطب التقليدي القائم على النباتات الطبية والعشبية. تم تسجيل ١٠٠ نوع نباتي في وادي فيران، جنوب سيناء مصر منهم أنواع مستوطنة في جنوب سيناء والعديد منها يعتبر نادراً وبعضها نادر جداً. العديد من هذه الأنواع لها فوائد طبية واقتصادية وبيئية متعددة بينما القليل منها له أهمية اقتصادية محدودة. تشمل الأهمية الطبية استخدام هذه النباتات في علاج العديد من الأمراض مثل مدرات البول وعلاج أمراض المسالك البولية وعلاج آلام المعدة والبطن وعلاج الجروح وعلاج الأمراض الجلدية والنشاط ضد البكتيريا والفطريات والفيروسات والحيوانات الأولية ومضادات الأكسدة ومضادات الالتهاب وغيرها من الاستخدامات الطبية المهمة. كما تعتبر من أهم مصادر الفيتامينات والمعادن. ولها أيضاً أهمية اقتصادية كبيرة ومن أهم الاستخدامات الاقتصادية استخدامها في الرعي، حطب الوقود، الأطعمة الصالحة للأكل، مستحضرات التجميل وغيرها من الاستخدامات الاقتصادية المهمة.

الكلمات الاسترشادية: النباتات الطبية، وادي فيران، جنوب سيناء.