

## Review Article

# A general account of the medicinal and aromatic plants from Istanbul: Past, present, and future perspectives

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## Abstract

Medicinal and aromatic plants (MAPs) are widely used globally as potential natural resources. However, issues like safety, quality, and efficacy of herbals have become a matter of public concern. The traditional knowledge and awareness about MAPs play an important role in the discovery of natural plant resources. Lately, challenges like urbanization, industrialization, habitat fragmentation, and invasive plants, together with the latest climate change scenarios, are hindering their conservation. Istanbul, as a highly populated city of Turkiye, is among the potential cosmopolitan cities; as such, the use has emerged as a challenge for its conservation. The state as a whole is represented by Euro-Siberian and Mediterranean phytogeographical regions, which are responsible for a rich plant diversity of MAPs. This manuscript covers the data related to the list of potential vascular plants of Istanbul as a possible source of MAPs. The difficulties that may arise in their protection in the province are discussed, and alternative protection strategies are evaluated in the light of recent trends and prospects.

**Keywords:** Medicinal and Aromatic Plants, Traditional Knowledge, Istanbul, Turkiye.

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## Introduction

With an increasing role played by the pharmacological effects of MAPs in the 21st century, herbal medicines have gained great value globally, as promising drugs and a rich source of therapeutic agents for the management of health services [1 - 3]. The reason behind this is that they serve as a rich source of several phytochemical compounds, which play an important role in the development of new drugs. These

compounds include alkaloids, saponins, flavonoids, steroids, terpenoids, glycosides, tannins, and essential oils. Several of these plants are popularly used in many disease groups due to the therapeutic activity of the compounds found in their roots, stems, leaves, flowers, fruits, and seeds [4 - 10]. The pharmacological bioactive compounds of MAPs used as food in traditional medicine may vary; however, they represent bioresources rich in minerals, vitamins, and biomolecules, very important

for the protection of human health [1, 11].

More than 70,000 MAPs have been used for medicinal purposes for centuries in particularly by different ethnic groups worldwide. It has been highlighted lately that about 80 percent of the world's population relies on traditional herbal medicine for primary health care. As a result of this, different medical systems based on the use of MAPs have emerged in different areas of the globe. Among these, some distinctive traditional systems are particularly those in the Amazonian in South America; the Indian subcontinent; Sino-Tibetan Traditional Chinese Medicine, several indigenous systems in Africa; Native American in North America; Ayurveda and Unani in other parts of Asia [2, 3, 12 - 14]. Currently, some countries continue to benefit from traditional knowledge of herbal medicine, such as Siddha and Ayurvedic medicine, especially in India, Kampo medicine in Japan, traditional Chinese medicine, and Unani medicine in the Middle East and South Asia. All these are still practiced as a source of treatment by the majority of people [1, 15].

Despite recent problems like climate change, industrialization, urbanization, habitat fragmentation, and invasive plants [16 - 19], MAPs continue to be widely used as natural healing sources in different cultures globally as a potential natural resource for the treatment of diseases. The studies on the discovery and promotion of plant resources in society are proliferating at a high rate. Therefore, there is a need to identify traditional knowledge as part of the natural cultural heritage and to raise awareness among local people in overpopulated cities as well. One of these potential cosmopolitan cities is Istanbul in Türkiye, which is emerging as a challenge for the protection of MAPs. In this chapter, an attempt has been made to compile a plant list for Istanbul as a potential source of MAPs. The past status, present situation

with current trends and future expectations have been evaluated.

### **A historical perspective of the MAP's in Istanbul**

In 700 BC, the majority of people living in the historical peninsula were highly engaged in trade, including fishing. The population at that time was around 40,000. In 196 A.D, during the reign of the Roman Emperor, the first wall of the city was built, and the city spread to the south and southwest. In 330 A.D, the city was rebuilt by the Emperor Constantine, and the new name of the city was Constantinople, and a new harbor was also built. The population of the city at that time was approximately 200,000. In the year 1453, Constantinople was conquered by the Emperor Fatih Sultan Mehmet Khan, and it came under the rule of the Ottoman Empire. During the new rule, people from different ethnic communities were advised to settle in different parts of the city, leading to a change in the demographic structure of the city, and it became a cosmopolitan city. In the 18th and 20th centuries, the public order of the city increased, the population became increasingly overcrowded, and the city grew even more [20 - 23].

The Ottoman Empire introduced its own system of government, which in many ways followed the structure of the Seljuks, who ruled before the Ottomans. The palace kitchens were one of the institutions affected by this. As the Ottomans expanded their borders over time, they incorporated Central Asian, Middle Eastern, partly Mediterranean, and European food cultures. The location of its trade routes and its position as a world-dominating state, had an impact on this eye-catching food diversity [24].

The “Ottoman Palace Cuisine” represents a deep-rooted cultural heritage that has survived through centuries. This culture, now known as modern Turkish cuisine, has

been influenced by the Turks from Central Asia, who shared their borders with China until 11<sup>th</sup> century. The cuisine after the acceptance of Islam and interaction with Afro-Arab nations, as well as Greeks, Hittites, and Persians, their usages also got incorporated into the food habits of Istanbul [24, 25]. The Ottomans evaluated the synthesis of different civilizations, continued to interact closely during their rule, ending up with the current Turkish culinary culture. They also incorporated the culinary culture of the regions they conquered during the rise of the empire into their own food systems [26]. Moreover, many types of spices were used in the Ottoman palace kitchens, most popular being cloves, cinnamon, saffron, mastic, and cardamom; sesame, sumac, cumin, and anise have also been used. The factor influencing this diversity of spices is that the spice routes passed through the Ottoman Empire following its conquests in the South and West. While saffron, cumin, and sesame spices were more commonly used in the cuisine of the Seljuk state, a much wider variety of spices were used in addition to these during Ottoman rule. The use of spices and MAPs in recipes in Ottoman cuisine has always been at a reasonable level and was effective in making food more impressive in taste and appearance [27, 28].

The "Helvahane Palace Pharmacy" is the one that best reflects the relationship between food and health in Ottoman cuisine. It is also considered a unit of the palace kitchen and is known as the place where some foods and drinks, such as pickles and sweets, were prepared, together with the pastes, syrups, and pills. The palace cooks who worked here had to have a certain amount of medical knowledge in the preparation of meals, and it changed according to the seasons, as well as the preparation of dietary meals and available herbal medicines.

The Ottoman archival documents reveal

that there were people responsible for collecting the MAPs needed in the palace kitchen from Istanbul and its surroundings [29]. Many MAPs were used in the production of herbal medicines and some of the recorded were: *Achillea millefolium*, *Agrimonia eupatoria*, *Allium cepa*, *Althaea officinalis*, *Artemisia absinthium*, *Berberis vulgaris*, *Capparis spinosa*, *Castanea sativa*, *Cerasus avium*, *Cercis siliquastrum*, *Chelidonium majus*, *Chondrilla juncea*, *Cichorium intybus*, *Convolvulus arvensis*, *Cupressus sempervirens*, *Cyclamen coum*, *Cydonia vulgaris*, *Cynodon dactylon*, *Daucus carota*, *Ecballium elaterium*, *Elaeagnus angustifolia*, *Eryngium campestre*, *Foeniculum vulgare*, *Fumaria officinalis*, *Glaucium corniculatum*, *Hordeum vulgare*, *Hyoscyamus albus*, *Hypericum perforatum*, *Juglans regia*, *Laurus nobilis*, *Lavandula stoechas*, *Malva sylvestris*, *Marrubium vulgare*, *Matricaria chamomilla*, *Melilotus officinalis*, *Melissa officinalis*, *Mentha piperita*, *Mentha pulegium*, *Mespilus germanica*, *Morus alba*, *Myrtus communis*, *Nigella sativa*, *Ocimum basilicum*, *Olea europea*, *Origanum vulgare*, *Paliurus spina-christi*, *Papaver rhoeas*, *Pimpinella anisum*, *Pistacia terebinthus*, *Platanus orientalis*, *Polygonum aviculare*, *Portulaca oleracea*, *Potentilla erecta*, *Prunus domestica*, *Punica granatum*, *Rosa canina*, *Rosmarinus officinalis*, *Rubia tinctoria*, *Rubus caesius*, *Rumex acetosella*, *Tamarix tetrandra*, *Teucrium chamaedrys*, *Teucrium polium*, *Tribulus terrestris*, *Urtica pilulifera*, *Viscum album*, *Vitex agnus-castus*, and *Vitis vinifera*. These have been identified following the translations and interpretations in the Ottoman archival documents. While some MAPs were grown within the territory of Empire, a significant proportion was also imported from Egypt as a part of the empire together with the distribution centres of MAPs from the Far East. These were also exported from here to other major Ottoman cities, as well as Europe [29, 30].

The historical perspective synthesis reveals that palace kitchens seem to be the places that best reflected the relationship between food and health. The New Osmanlı Cuisine, which was formed as a result of the progress made in the culinary field by the Westernization movements has gained momentum in the 18th century, turning it into a Westernized Osmanlı Cuisine in the 19th century and moved away from Westernization with the declaration of the Republic, but could not be abandoned and consequently led to the formation of Turkish Cuisine under the then situation of the country [24]. Istanbul, one of the cosmopolitan cities, has always stood out with its history and has never lost its popularity, presenting several examples of Turkish cuisine.

### Current status of Istanbul and MAPs

#### Latest updates on plant biodiversity in Istanbul

Istanbul is located on 2 continents, between 2 seas and in 2 phytogeographical regions, on both the European and Asian sides of the Bosphorus, surrounded by the Black Sea to the north, the Sea of Marmara to the south, the province of Kocaeli to the east, and the province of Tekirdağ to the west. It shows a rich floristic biodiversity accommodating different ecosystems, especially coasts, islands, mountains, forests, meadows, and coastal wetlands. The studies published during the last 2 decades provide comprehensive information on the city's flora and ecology [18, 31 - 46]. In the latest updated checklist prepared for the flora of Istanbul, a total of 2263 vascular plant taxa belonging to 127 families are mentioned; the Fabaceae family is represented by 253 taxa, the Poaceae by 252 taxa and the Asteraceae by 237 taxa. Moreover, the leaf parts of 242 taxa, the fruits of 70 taxa, the underground parts of 57 taxa, the flower parts of 35 taxa, the seeds of 26 taxa and the aboveground parts of 21 taxa are potentially evaluated as edible food plants from the

natural plant diversity of Istanbul [31].

### Istanbul MAPs and traditional knowledge

Increasingly difficult living conditions in metropolitan cities make it difficult to record traditional knowledge [47]. Many people from different geographical areas of Anatolia migrate to different districts of Istanbul in search of a better living. This situation has emerged following the drastic changes in the demographic structure of Istanbul. All these have led to the diversification of traditional folk knowledge. The limited availability of MAP2's new settings and easier access to modern health services, together with the lack of interest among the younger generation, has prevented a major part of the folk medicine practices from being transferred into texts till today. This has put the folk medicine practices at risk of being lost. However, due to the increasing popularity of herbal medicines lately, the news about the healing potential of MAPs is often published in different sources (newspapers, magazines, books), audiovisual (TV, radio), or digital (internet, Facebook) media. This situation is definitely leading to changes in the use of local medicines due to increased public awareness. Nevertheless, although limited in number, some studies have been carried out to record traditional knowledge in some districts of Istanbul, which are further away from the urban environment and have a more rural character. These studies are as follows: in Şile, one of the districts on the Anatolian side of Istanbul, the use of 43 MAPs in traditional folk medicine by local people has been documented, which have been most used by local people for the treatment of eczema, stomach and kidney disorders, cough, asthma, wounds, and diabetes. The typical examples of the most popular MAPs commonly used to treat these ailments include *Rosa canina*, *Urtica dioica*, *Sambucus ebulus* and *Thymus longicaulis* [48].



In Çatalca, lying on the European side of Istanbul, use of 68 MAPs in traditional folk medicine by the local population has been documented. These are most commonly used to treat stomach and kidney disorders, cough, diabetes, rheumatism and inflammation. The most popular MAPs used to treat these diseases are *Hypericum perforatum*, *Rosa canina*, *Ecballium elaterium*, *Juglans regia*, *Laurus nobilis*, *Tilia argentea*, *Urtica dioica*, *Malva sylvestris*, *Mentha pulegium*, *Arum italicum*, *Cotinus coggyria*, *Crataegus monogyna*, *Cydonia oblonga*, *Ficus carica*, *Plantago lanceolata*, *Plantago major*, *Prunus spinosa*, *Rubus sanctus*, *Sambucus ebulus*, *Sambucus nigra*, *Sinapis arvensis*, and *Thymus sibthorpii* [49].

In Silivri, a district on the European side of Istanbul, locals are using 35 MAPs in traditional folk medicine. These MAPs are mainly used for stomach disorders, cough, hemorrhoids, rheumatism, cold, eczema and diabetes. The most popular MAPs commonly used in the treatment of these disorders are *Hypericum perforatum*, *Ecballium elaterium*, *Malva sylvestris*, *Rosa canina*, *Paliurus spina-christi* and *Prunus spinosa* [50].

### Economic importance of Istanbul MAPs

In Türkiye, MAPs collected from nature are generally traded through herbalists, markets, neighborhood bazaars and pharmacies [51 - 54]. The spices that do not grow naturally, such as cinnamon, black pepper, cloves, and ginger, are fully imported [52, 55]. The number of MAPs collected from nature in Türkiye and traded in the domestic markets is around 350 and about 100 of these are reported to have an export potential [56]. The herbalists in the city of Istanbul mostly sell lime, followed by ginger, sage, chamomile, turmeric, lemon balm, thyme, mint and green tea plants in Istanbul. These plants are generally preferred for respiratory illnesses such as flu and colds in the winter months,

especially lime, turmeric, cinnamon, sage, chamomile, and ginger.

It has been highlighted that herbal products used for weight loss are preferred in the summer months [54]. The Grand Bazaar (Kapalıçarşı), a very important attraction site in tourism, is located in the heart of Istanbul and is known as one of the historical places where the oldest and largest natural and cultural product industries in the world have gathered for more than 5 centuries [57]. One of the most popular natural products sold here are the MAPs; in addition to the imported plants, natural MAPs too are popularly sold in every season (Figure 1). This situation also provides a significant economic contribution to the "MAPs and spice tourism" of the historic city.



Figure 1: Some of the MAPs sold at the grand bazaar in Istanbul.

### Potential MAPs distributed in the flora of Istanbul

There are about 1500 MAPs registered in Türkiye according to the latest ethnobotanical studies [47, 58 - 72]. An evaluation of the latest published records, in addition to the MAPs whose names have changed or have become synonymous, was taken into account, and the necessary up-to-date corrections were made by considering the "Turkish Vascular Plants List" [73].

The data obtained from the comparative analysis revealed that a total of 707 MAPs are potentially found in the Istanbul flora. The names of these MAPs found in the Istanbul flora (Figure 2) are listed in details alphabetically in Appendix 1.



Figure 2: Some of the naturally growing plants in the flora of Istanbul used as potential medicinal plants. (1: *Adonis annua*; 2: *Origanum vulgare* ssp. *hirtum*; 3: *Malva sylvestris*; 4: *Anacamptis pyramidalis*; 5: *Lamium gargaricum* ssp. *gargaricum*; 6: *Arum maculatum*; 7: *Melissa officinalis* ssp. *officinalis*; 8: *Atropa belladonna*; 9: *Borago officinalis*; 10: *Mentha pulegium*; 11: *Cyanus segetum*; 12: *Cichorium intybus*; 13: *Erica manipuliflora*; 14: *Hypericum perforatum*;

15: *Rosa foetida*, 16: *Fumaria officinalis*; 17: *Jasminum fruticans*; 18: *Laurus nobilis*; 19: *Lavandula stoechas*; 20: *Matricaria chamomilla* var. *recutita*; 21: *Papaver rhoeas*; 22: *Silybum marianum*; 23: *Teucrium polium*; 24: *Tribulus terrestris*; 25: *Trifolium medium*; 26: *Thymus longicaulis*; 27: *Taraxacum pseudobrachyglossum*; 28: *Solanum dulcamara*; 29: *Saponaria officinalis*; 30: *Salvia verbeneca*).

In the recent literature *Urtica dioica* plants are reported to be used medicinally, mainly the leaves and aerial parts, which are preferred for cancer, rheumatic diseases and hemorrhoidal disorders; also used for dermatological problems such as wounds, psoriasis, eczema, yeast and hair problems; hormonal disorders such as diabetes, thyroid disorders and weight problems; cardiovascular diseases such as cholesterol problems and blood pressure problems; gastrointestinal disorders such as abdominal pain, stomach disorders, bowel disorders, liver and gallbladder disorders; musculoskeletal disorders such as bone and joint pain and fractures; respiratory disorders such as colds, sore throats, tonsil infections, bronchitis, asthma and shortness of breath; and genitourinary disorders [58, 61, 64 - 68].

*Rosa canina* is another well-known plant whose fruits are used to treat respiratory ailments such as colds, coughs, bronchitis, asthma, diabetes, and hemorrhoids [58].

The leaves of *Plantago major* are widely used to treat wounds, boils, and abscesses; often used for stomach aches, hemorrhoids, and rheumatic conditions [58].

The walnut *Juglans regia* is another widely used plant, most used parts are the leaves, fruits, and fruit peel; used for diseases such as diabetes, rheumatic diseases, eczema, hair loss, hair care, hyperlipidemia, and hemorrhoids [58, 61, 64, 65, 68]. *Hypericum perforatum* is yet another

important medicinal plant used widely. In general, flowers or flowering aerial parts are used as medicine. As a wound healer, the plant's flowers are preserved in olive oil, and the resulting medicine is applied to wounds and burns. For stomach problems, the oil is taken internally or used as an infusion or decoction of the flowers or aerial parts [58, 61, 64, 65].

*Teucrium polium* aerial parts are used for diabetes, stomach aches, hemorrhoids and abdominal pain; juice of the fruits of the *Ecballium elaterium* is used in the form of nasal drops to treat sinusitis and jaundice; herbal tea made from the leaves of *Malva sylvestris* is used for respiratory ailments such as cough, cold, flu and tonsillitis, the poultice made from *Malva* leaves are also used as a wound healer. The leaves and fruit parts of *Viscum album* have also been recorded as regulating blood pressure, diabetes and respiratory diseases. The leaves, fruits, fruit peel, and flowers of *Cydonia oblonga* are used for respiratory ailments such as cough, cold, bronchitis, sore throat, diarrhea, and diabetes [58, 61, 64 - 68, 74].

### **Social awareness activities related to the Istanbul MAPS**

Many of the MAPs are used as ornamentals in parks and gardens due to their pleasant scent and healing properties as well as visual richness; but they have a rich alternative potential in urban landscape design with their pleasant flowers and colorful leaves when grown in traditional houses, parks and gardens in many large cities of Türkiye, especially living habits in Central Asia [75 - 78]. The most attractive examples are shown in the “Medicinal Plant Gardens”, with a widespread occurrence in medieval Europe during early historical periods [79, 80]. Today, it has been emphasized that the MAPs are natural resources that can potentially be evaluated in different areas, such as "Collection Gardens, Botanical Gardens, Healing

Therapy Gardens, Roof and Terrace Gardens, Rock Gardens, Dry Stone Walls, Sloping Areas and Roads" [81], in plant landscape designs that take into account their aesthetic and functional benefits. Among these types of use, 'healing gardens' and 'botanical gardens' stand out.

"Therapeutic gardens" are designed to encourage patients, visitors, and hospital staff to take a break from the stressful environment they are in [75, 82, 83]. The criteria considered in their landscape design are generally different depending on the age group and disease state [81]. While peace and tranquillity are prioritized in planned therapeutic gardens for elderly people, those designed for children generally aim at freedom of play. In both cases, MAPs appeal to the senses of the people visiting such gardens, especially the sense of pleasant smell, the sense of touch with different morpho-anatomical structures, the sense of sight with their aesthetic appearance, and the sense of taste with the collection and tasting of cultivated herbal products [75]. "Botanical Gardens" are organizations that grow natural and cultivated plants in a certain order according to their purpose, introduce and educate the public and students, provide limited information about botanical science, meet recreational needs, and conduct scientific research on plant species for various purposes [75, 84, 85]. Such gardens do have specialized gardens under the name of MAPs, and this section provides an important opportunity for the introduction of these species for teaching and the provision of detailed information on MAPs [75]. There are research centers in Istanbul that make significant contributions to the collection of MAPs from nature to the protection of biodiversity and, most importantly, to their promotion and public awareness. At the “Nezahat Gökyiğit Botanical Garden” in Istanbul, some studies are being carried out for the ex-situ conservation of some endangered species. “The Nezahat Gökyiğit Botanical Garden”



has an important place in environmental protection because of the collections it contains and presents for the benefit of the people of Istanbul. It is an educational garden that is pleasing to the eye and also provides a green space for commons [56].

Turkiye's first medicinal herb garden, “the Zeytinburnu Medicinal Herb Garden,” is located in the Zeytinburnu district of Istanbul, established in 2005, and around 750 MAPs are on display. Interestingly, the plants are grown without the use of synthetic fertilizers, herbicides and pesticides. Training programmes are also organised here to research, propagate and introduce MAPs, to contribute to the protection and development of plant diversity, to teach the effective and safe use of MAPs, to cultivate and grow MAPs and to create awareness at all levels [86]. Recently a similar garden is said to have been opened in the Esenyurt district of Istanbul.

### **Future prospects for the MAPs of Istanbul**

The quality of herbal medicines can be improved by implementing good agricultural practices at the point of cultivation of MAPs and also by applying good manufacturing practices throughout the production and packaging of herbal products. However, post-marketing quality assurance needs to be continuously monitored. Following improvements in quality control and regulatory measures in many countries around the world, it is expected that herbal medicinal practices will be integrated into traditional medicines in the near future [1, 87]. The safety concerns associated with the consumption of certain herbal medicines have also been assessed and acknowledged using in vitro and in vivo systems; for example, a large body of scientific evidence from randomized clinical trials has provided positive results for the use of most herbal preparations. Additionally, omics

techniques have helped to understand the mechanism of action of herbal bioactive principles, paving the way for the modernization and standardization of various herbal medicines [88 - 90]. Due to the lack of regulation for the collection of MAPs in the wild, the necessary control in the trade of herbal products is inadequate. The relevant official authorities must give priority to educating the local population about the sustainable collection of these plants, at local, regional or national level, and this will play an important role in raising awareness and also allow the collection of MAPs from nature to be kept under control. In the next stage, studies can be carried out to develop these MAPs from an environmental and economic point of view [56].

In Türkiye, issues such as cultivation, harvesting, production and trade of MAPs are under the jurisdiction of different ministries, such as Agriculture, Forestry or Health. There is an urgent need to reorganise the status of this issue and make it easier to regulate through a single competent ministry. The Ministry of Agriculture and Forestry and the Horticultural Research Institutes are conducting several project studies on the harvesting and storage of MAPs and the development of product preparation techniques. The necessary preparations are being made by the Ministry of Health to include the herbal monographs of MAPs that are important for Türkiye in the Turkish Pharmacopoeia [56]. The best example of this situation is the “Silivri Municipality Agricultural Production and Research Centre (TÜRAME)”, established in 2009 in the Silivri district of Istanbul, which is leading the way in this regard by cooperating with the Faculty of Agriculture of Namık Kemal University [56]. The inter-institutional cooperation project studies, agricultural production and research centres to be established throughout Türkiye, especially in other districts of Istanbul, will significantly contribute towards the



sustainable economic development as well as to the collection of MAPs from nature and biodiversity protection [56].

It is very important to benefit economically from MAPs and to develop conservation strategies for sustainability. In this context, the Ministry of Agriculture and Forestry of the Republic of Türkiye launched the "Recording Traditional Knowledge Based on Biodiversity" projects in 2017. The same Ministry also implemented the "Species Action Plan" projects [56]. In addition, the "Türkiye Seed Gene Bank" was opened in 2010 [56]. These projects are worth following and undoubtedly more studies on MAPs should be carried out in future. Furthermore, the cultivation and protection of MAPs in Türkiye, especially in Istanbul, is an important step for our future natural resource crisis [2, 3, 31, 71]. As it will be an important step in the sustainable use of our wealth of MAPs, an alternative natural resource will make a significant contribution to the country's economy, especially in improving the socio-economic status of local people.

## Conclusion

A total of 707 medicinal and aromatic plants (MAPs) have been identified in the Istanbul flora. Appropriate comparative meta-analyses of socio-economic, cultural, agricultural, technical, scientific, and conservation factors of these plants need to be carried out. In particular, their collection, study, and identification in the region will be important in developing strategies for habitat and regeneration field studies. More extensive cultivations should be considered at local, regional, national, and international levels, especially in Istanbul, together with information needed on the conservation status and potential markets for such plants. Further development of MAPs research centres, their coordination at national and international levels, will facilitate their supply of products to local markets by

small-scale industries. The research programmes on the regeneration and management of natural MAPs in Türkiye in general and in the region in particular should be encouraged and funded.

## References

1. Khan MSA, Ahmad I. Herbal medicine: current trends and future prospects. New look to phytomedicine. Academic Press. 2019: 3-13.
2. Ozturk M, Sridhar KR, Sarwat M, Altay V, Huerta-Martínez F.M. Ethnic Knowledge and Perspectives of Medicinal Plants: Volume 1: Curative Properties and Treatment Strategies. CRC Press; 2024.
3. Ozturk M, Sridhar KR, Sarwat M, Altay V, Huerta-Martínez F.M. Ethnic Knowledge and Perspectives of Medicinal Plants: Volume 2: Nutritional and Dietary Benefits. CRC Press; 2024.
4. Wink M. Introduction: biochemistry, physiology and ecological functions of secondary metabolites. In: Wink M, editor. *Annual Plant Reviews, Volume 40: Biochemistry of Plant Secondary Metabolism*. Wiley-Blackwell; 2010: 1-19.
5. Pleskanovskaya SA, Mamedova MA, Ashiraliyeva MA, Altay V, Ozturk M. Glycyrrhiza glabra (licorice) in Turkmenistan: medicinal and biological aspects. In: Ozturk M, Hakeem KR, editors. *Plant and human health. Vol. 3: Pharmacology and therapeutic uses*. Cham (Switzerland): Springer International Publishing; 2019: 23-35.
6. Martinez MJ, Lazaro RM, Del Olmo LM, Benito PB. Anti-infectious activity in the anthemideae tribe. *Studies in Natural Products Chemistry*. 2008 Jan 1;35: 445-516.
7. Altay V, Keskin M, Gul A, Ozturk M. Pricklyburr (*Datura innoxia* Miller – Solanaceae). In: *Comprehensive guide to hallucinogenic plants*. CRC Press; 2025:354-360.

8. Keskin M, Altay V, Ozturk M. Tepezcohuite (*Senegalia tenuifolia* (L.) Britton & Rose [syn.: *Mimosa tenuiflora* (Willd.) Poir.] Fabaceae). In: *Comprehensive guide to hallucinogenic plants*. CRC Press; 2025: 112-115.
9. Keskin M, Altay V, Gul A, Ozturk M. Sensitive Plant (*Mimosa pudica* L. Fabaceae). In: *Comprehensive guide to hallucinogenic plants*. CRC Press; 2025: 116-120.
10. Keskin M, Altay V, Ozturk M. Sweet Flag (*Acorus calamus* L. Acoraceae). In: *Comprehensive guide to hallucinogenic plants*. CRC Press; 2025: 11-15.
11. Shakya AK. Medicinal plants: Future source of new drugs. *International journal of herbal medicine*. 2016 Jun 4;4(4):59-64.
12. Malik K, Ahmad M, Öztürk M, Altay V, Zafar M, Sultana S. Herbals of Asia: prevalent diseases and their treatments. Springer; 2021 Nov 16.
13. Öztürk MA, Altay V, Efe R, editors. Biodiversity, Conservation and Sustainability in Asia. Cham: Springer; 2022.
14. Ozturk M, Khan SM, Altay V, Efe R, Egamberdieva D, Khassanov F. *Biodiversity, conservation and sustainability in Asia: volume II: prospects and challenges in South and Middle Asia*. Springer Nature Switzerland AG; 2022.
15. Masoodi KZ, Amin I, Mansoor S, Ahmed N, Altay V, Ozturk M. Botanicals from the Himalayas with anticancer potential: an emphasis on the Kashmir Himalayas. In: *Biodiversity and biomedicine*. Academic Press; 2020: 189-234.
16. Imanberdieva N, Imankul B, Severoğlu Z, Altay V, Ozturk M. Potential impacts of climate change on plant diversity of Sary-Chelek Biosphere Reserve in Kyrgyzstan. In: *Vegetation of Central Asia and Environs*. Springer; 2018: 349-364.
17. Imanberdieva N, Severoğlu Z, Kurmanbekova G, Altay V, Ozturk M. Plant diversity of Ala-Archa National Park in Kyrgyzstan with emphasis on its economical potential. In: *Vegetation of Central Asia and Environs*. Springer Nature Switzerland AG; 2018: 365-381.
18. Altay V, Şilc U, Yarcı C, Kavgacı A, Čarni A, Ozturk M. Urban vegetation of the Anatolian side of Istanbul. *Phytocoenologia*. 2020;50(2):101.
19. Ozturk M, Gul A, Baig MD, Rafique K, Altay V, Siddique I, Shuja A, Mustafa R, Jameel R. Nature conservation, air pollution, plant diversity in different ecosystems and impact of climate change. In: *Forests and Carbon Sequestration*. Cambridge Scholars Publishing; 2025: 330-422.
20. Aktaş NK. The change analysis of the green spaces of the Historical Peninsula in Istanbul, Turkey. In: *Landscape Archaeology between Art and Science*. 2015; 2015: 81-88.
21. Kuban D. Koloni Şehrinden İmparatorluk Başkentine. *Journal of Istanbul*. 1993;4:10-25.
22. Yerasimos S. Batılılaşma Sürecinde İstanbul. In: *Dünya Kenti İstanbul. Habitat II. Urban Meeting Istanbul 1996. International Scientific Assembly, 3–12 June 1996*. 1996.
23. Ortaylı İ. *İstanbul'dan Sayfalar*. Alkım Press, İstanbul; 2007.
24. Çakır B. Osmanlı döneminde günümüze tıbbi ve aromatik bitkilerin kullanım alanları: Osmanlı saray mutfağına bakış. MSc. thesis, İstanbul Ayvansaray University; 2021.
25. Demirgöl F. Çadırdan Sofraya Türk Mutfağı. *Uluslararası Türk Dünyası Turizm Araştırmaları Dergisi*. 2018;3(1):105-125.
26. Şanlıer N, Cömert M, Durlu Özkaya F. Gençlerin Türk Mutfağına Bakış Açısı. *Milli Folklor*. 2012;24(94):161-172.
27. Lawicka PB. Flavorings in Context: Spices and Herbs in Medieval Near East. *Rocznik Orientalistyczny*. 2011;1:140-149.

28. Ayyıldız S, Sarper F. Antioksidan Baharatların Osmanlı Saray Mutfağındaki Yeri. *Karabük Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*. 2019;9(1):363-380.
29. Bilgin A. Osmanlı Döneminde İlâç Yapımında Kullanılan Tıbbî Bitkiler. *Osmanlılarda Sağlık*. 2006;1:231-237.
30. Gümüştam G. Risâle-i Mu'âlece'ye Göre On Altıncı Yüzyıl Osmanlı Tıbbında Bitkisel Tedavi Şekilleri ve Terminoloji. *Osmanlı Bilimi Araştırmaları*. 2022;23(2):261-290.
31. Keskin M, Altay V, Ozturk M. Traditional Use of Plant Diversity for Nutritional Purposes: A Case Study from Istanbul (Turkiye). In: *Ethnic Knowledge and Perspectives of Medicinal Plants*. Apple Academic Press; 2024:3-56.
32. Serin M, Yarci C, Altay V. Ecological characteristics of some biotopes in İstanbul. In: *X. European Ecological Congress*. Vol. 1, No. 425; 2005:8-13.
33. Altay V, Ozyiğit II, Yarci C. Urban flora and ecological characteristics of the Kartal District (Istanbul): a contribution to urban ecology in Turkey. *Sci Res Essays*. 2010; 5:183-200.
34. Altay V, Ozyiğit II, Yarci C. Urban ecological characteristics and vascular wall flora on the Anatolian side of Istanbul, Turkey. *Maejo Int J Sci Technol*. 2010; 4:483-495.
35. Altay V, Özyiğit II, Yarcı C. Plant communities in urban habitats of Istanbul-Turkey. *Pakistan Journal of Botany*. 2012; 44(1):177-186.
36. Altay V, Ozyigit II, Keskin M, Demir G, Yalcin I.E. An ecological study of endemic plant *Polygonum istanbulicum* Keskin and its environs. *Pak J Bot*. 2013; 45(S1):455-459.
37. Altay V, Ozyigit II, Osma E, Bakir Y, Demir G, Severoglu Z, Yarci C. Environmental relationships of the vascular flora alongside the railway tracks between Haydarpaşa and Gebze (Istanbul-Kocaeli/Turkey). *J Environ Biol*. 2015; 36(1):153-162.
38. Osma E, Ozyiğit II, Altay V, Serin M. Urban vascular flora and ecological characteristics of Kadıköy district, Istanbul, Turkey. *Maejo Int J Sci Technol*. 2010; 4(1):64-87.
39. Tarakçı S, Altay V, Keskin M, Sümer S. Beykoz ve çevresi (İstanbul)'nin kent florası. *Karadeniz Fen Bilimleri Dergisi*. 2012; 3(2):47-66.
40. Eskin B, Altay V, Özyiğit II, Serin M. Urban vascular flora and ecologic characteristics of the Pendik District (Istanbul-Turkey). *African Journal of Agricultural Research*. 2012; 7(4):629-646.
41. Eskin B, Ozyigit II, Dogan I, Altay V, Demir G, Serin M. Germination physiology and autecology of *Centaurea kilaea* Boiss. from Turkey. *Sains Malaysiana* 2013; 42(10):1473-1482.
42. Eroğlu HK, Ozyigit II, Altay V, Yarcı C. Autecological characteristics of *Centaurea hermannii* F. Herm.: An endemic species from Turkey. *Bulgarian Journal of Agricultural Science*. 2014; 20(1):183-187.
43. Ozyigit S, Altay V, Ozyigit II, Yarci C. Vegetation ecology of the Princes' Islands, Istanbul-Turkey. *Journal of Environmental Biology*. 2015; 36(1):113.
44. Sezer Y, Altay V, Ozyigit II, Yarcı C. Woody vegetation of Şile and its environs (Istanbul/Turkey) and destruction of the area. *J Environ Biol*. 2015; 36:163-170.
45. Altay V. Ecology of *Pinus sylvestris* L. Forests- A case study from Istanbul (Turkey). *Pakistan Journal of Botany*. 2019; 51(5):1711-1718.
46. Keskin M, Altay V, Yalcin IE, Ozturk M. An ecological study on the *Isoetes* community in Istanbul, Türkiye. *NUST Journal of Natural Sciences*. 2024; 9(2):42-51.
47. Yeşilada E. An overview of Turkish folk medicine; past and present. *Current Drug Delivery*. 2013; 10(1):92-95.
48. Tuzlacı E, Tolon E. Turkish folk

- medicinal plants, part III: Şile (Istanbul). *Fitoterapia*, 2000; 71(6): 673-685.
49. Genç GE, Özhatay N. An ethnobotanical study in Çatalca (European part of Istanbul) II. *Turkish Journal of Pharmaceutical Sciences*. 2006; 3(2):73-89.
  50. Bulut G. Folk medicinal plants of Silivri (Istanbul, Turkey). *Marmara Pharmaceutical Journal*. 2011; 15(1): 25-29.
  51. Altay V, Çelik O. Antakya semt pazarlarındaki bazı doğal bitkilerin etnobotanik yönden araştırılması. *Biyoloji Bilimleri Araştırma Dergisi*. 2011; 4(2):137-139.
  52. Altay V, Karahan F, Sarcan YB, İlçim A. An ethnobotanical research on wild plants sold in Kırıkhan district Hatay/Turkey herbalists and local markets. *Biological Diversity and Conservation*. 2015; 8(2):81-91.
  53. Kurt R, Karayılmazlar S, İmren E, Çabuk Y. Türkiye ormancılık sektöründe odun dışı orman ürünleri: İhracat analizi. *Bartın Orman Fakültesi Dergisi*, 2016; 18(2):158-167.
  54. Özkan O, Deniz T. Aktarların bakış açısıyla tıbbi bitki talebinin analizi. *Turkish Journal of Forestry*. 2021; 22(1):25-32.
  55. Arslan, N. Tıbbi bitkilerin yetiştiriciliğine ve pazarlamasına genel bir bakış. *Erzincan Tıbbi ve Aromatik Bitkiler Arama Çalıştayı*, 16 Şubat, Erzincan, p. 47-69; 2017.
  56. Akalın E, Gurdal B, Olcay B. General overview on the conservation of medicinal plants in Turkey. *Turkish Journal of Biodiversity*. 2020; 3(2):86-94.
  57. Köroğlu B, Ecerel T, Uğurlar A. The story of a jewelry cluster in Istanbul metropolitan area: grand bazaar (Kapalıçarşı). *Gazi University Journal of Science*. 2009; 22(4):383-394.
  58. Tuzlacı E. *Türkiye Bitkileri Geleneksel İlaç Rehberi*. İstanbul: İstanbul Tıp Kitabevleri; 2016.
  59. Altay V, Karahan F. Tayfur Sökmen Kampüsü (Antakya-Hatay) ve çevresinde bulunan bitkiler üzerine etnobotanik bir araştırma. *Karadeniz Fen Bilimleri Dergisi*, 2012;3(2):13-28.
  60. Altay V, Karahan F. Anadolu geleneksel tıbbında güneş çarpması ve güneş yanığı tedavisinde kullanılan tıbbi bitkiler. *Erzincan Univ J Sci Technol*. 2017; 10(1):124-137.
  61. Koyu EB. *Türkiye'nin etnobotanik veritabanı* [PhD thesis]. İzmir: Ege University; 2020.
  62. Keskin M, Altay V, Ozturk M. Evaluation of medicinal and ecological aspects of Pteridophytes in Türkiye. *Plants as Medicine and Aromatics*. CRC Press. 2023:309-324.
  63. Ozturk M, Gucel S, Altay V, Altundag E. Alliums, an underutilized genetic resource in the East Mediterranean. *VI International Symposium on Edible Alliaceae*. 969; 2012:303-309.
  64. Ozturk M, Altay V, Gucel S, Altundag E. Plant diversity of the drylands in Southeastern Anatolia-Turkey: role in human health and food security. In: *Plant Biodiversity: Monitoring, Assessment and Conservation*. CABI, Wallingford UK. 2017: 83-124.
  65. Ozturk M, Altay V, Gonenç TM. Herbals from high mountains in the East Mediterranean. In: *Drug Discovery from Herbs – Approaches and Applications*. DAYA Publishing House, New Delhi. 2017: 327-367.
  66. Ozturk M, Altay V, Altundağ E, Ibadullayeva SJ, Aslanipour B, Gonenç TM. Herbals in Iğdır (Turkey), Nakhchivan (Azerbaijan), and Tabriz (Iran). In: *Plant and Human Health, Volume 1: Ethnobotany and Physiology*. Springer. 2018: 197-266.
  67. Ozturk M, Altay V, Latiff A, Shareef S, Shaheen F, Iqbal Choudhry M. Potential medicinal plants used in hypertension in Turkey, Pakistan, and Malaysia. In: *Plant and Human Health, Volume 1: Ethnobotany and Physiology*. Springer. 2018: 595-618.



68. Ozturk M, Altay V, Latiff A, Asad Ziaee M, Iqbal Choudhry M, Shaheen F, Durmuşkahya C. A comparative analysis of the medicinal plants used for diabetes mellitus in traditional medicine in Turkey, Pakistan, and Malaysia. In: *Plant and Human Health, Volume 1: Ethnobotany and Physiology*. Springer. 2018: 409-461.
69. Ozturk M, Altay V, Latiff A, Salman T, Choudhry I. A comparative analysis of the medicinal pteridophytes in Turkey, Pakistan, and Malaysia. In: *Plant and Human Health, Volume 1: Ethnobotany and Physiology*. Springer. 2018: 349-390.
70. Ozturk M, Gökler İ, Altay V. Medicinal bryophytes distributed in Turkey. In: *Plant and Human Health, Volume 1: Ethnobotany and Physiology*. Springer. 2018: 323-348.
71. Ozturk M, Altay V, Keskin M. Folkloric knowledge of endemic plants: traditional uses as spices, food and herbal teas by the local communities in Türkiye. *Ethnic Knowledge and Perspectives of Medicinal Plants*. Apple Academic Press. 2024:137-152.
72. Ozturk M, Altay V, Younessi-Hamzekhanlu M. Medicinal uses of *Cichorium intybus* roots. *Medicinal Roots and Tubers for Pharmaceutical and Commercial Applications*. CRC Press. 2024:101.
73. Bizim Bitkiler. Turkish vascular plant list [Internet]. Nezahat Gökyiğit Botanik Bahçesi; 2018 [cited 2025 Mar 05]. Available from: <https://www.bizimbitkiler.org.tr/>
74. Ozturk M, Altay V, Keskin M, Gul A. Squirting Cucumber (*Ecballium elaterium* (L.) A. Rich. – Cucurbitaceae). In: *Comprehensive Guide to Hallucinogenic Plants*. CRC Press; 2025: 387-393.
75. Kösa S, Güral SM. Tıbbi ve aromatik bitkiler ve peyzajda kullanımları. *PEYZAJ – Eğitim, Bilim, Kültür ve Sanat Dergisi*. 2019;1(1):41-54.
76. Dönmez Ş, Çakır M, Kef Ş. Bartın’da yetişen bazı tıbbi ve aromatik bitkilerin peyzaj mimarlığında kullanımı. *Süleyman Demirel Üniversitesi Mimarlık Bilimleri ve Uygulamaları Dergisi*. 2016;1(2):1-8.
77. Pouya S, Demir S. Peyzaj mimarlığında tıbbi ve aromatik bitkilerin kullanımı. *Uluslararası Sosyal Araştırmalar Dergisi*. 2017;10(54):1114.
78. Ozturk M, Ozcelik H, Aksoy A, Akcicek E. Gardens in Turkish culture and botanical gardens in Anatolia. *Proceedings of the Third Conference of the International Association of Botanical Gardens, Asian Division*. Xinjiang People’s Publishing House. 1997:33-40.
79. Leszczynski AN. *Planting the Landscape: A Professional Approach to Garden Design*. John Wiley and Sons Inc. New York. 1997.
80. Dönmez Ş. Uses of some medicinal and aromatic plants in the landscape architecture grown in the Lakes District. *International Journal of Advanced Research*. 2016;4(8):30-36.
81. Arslan M, Kalaylioglu Z, Ekren E. Use of Medicinal and Aromatic Plants in Therapeutic Gardens. *Indian Journal of Pharmaceutical Education and Research*. 2018; 51(4S):151-154.
82. Pouya S, Bayramoğlu E, Demirel Ö. Şifa bahçesi tasarım yöntemlerinin araştırılması. *Kastamonu Univ Orman Fak Derg*. 2015;15(1):15-25.
83. Ulrich RS. Effects of gardens on health outcomes: theory and research. In: *Healing gardens: therapeutic benefits and design recommendations*. New York: John Wiley; 1999. p. 27-86.
84. Önder S, Konaklı N. Konya’da botanik bahçesi planlama ilkelerinin belirlenmesi. *Tekirdağ Ziraat Fak Derg*. 2011;8(2):1-12.
85. Heywood VH. The changing role of the botanic garden. IUCN Monitoring Centre, Kew, England, UK; 1987.
86. Zeytinburnu Botanik Bahçesi. The Zeytinburnu Medicinal Herb Garden [Internet]. Available from: <https://>

- www.ztbb.org/ztbb/ [cited 2025 Apr 10].
87. Chikezie PC, Ojiako OA. Herbal medicine: yesterday, today and tomorrow. *Altern Integr Med*. 2015; 4:195.
88. Haq J. Safety of medicinal plants. *Pak J Med Res*. 2004;43(4):18.
89. Bubela T, Boon H, Caulfield T. Herbal remedy clinical trials in the media: a comparison with the coverage of conventional pharmaceuticals. *BMC Med*. 2008;6:35.
90. Buriani A, Garcia-Bermejo ML, Bosisio E, Xu Q, Li H, Dong X. Omic techniques in systems biology approaches to traditional Chinese medicine research: present and future. *J Ethnopharmacol*. 2012;140(3):535-544.

Appendix 1: List of potential MAPs found in the flora of Istanbul (\*: natural, \*\*: cultivated).

| S/No | Code | Botanical Name                                              | Family          |
|------|------|-------------------------------------------------------------|-----------------|
| 1    | *    | <i>Acer campestre</i> ssp.campestre                         | Sapindaceae     |
| 2    | **   | <i>Acer negundo</i>                                         | Sapindaceae     |
| 3    | *    | <i>Achillea crithmifolia</i>                                | Asteraceae      |
| 4    | *    | <i>Achillea millefolium</i> ssp.millefolium var.millefolium | Asteraceae      |
| 5    | *    | <i>Achillea nobilis</i> var.neilreichii                     | Asteraceae      |
| 6    | *    | <i>Achillea pannonica</i>                                   | Asteraceae      |
| 7    | *    | <i>Achillea setacea</i>                                     | Asteraceae      |
| 8    | *    | <i>Adiantum capillus-veneris</i>                            | Pteridaceae     |
| 9    | *    | <i>Adonis aestivalis</i> ssp.aestivalis                     | Ranunculaceae   |
| 10   | *    | <i>Adonis annua</i>                                         | Ranunculaceae   |
| 11   | **   | <i>Aesculus hippocastanum</i>                               | Sapindaceae     |
| 12   | *    | <i>Agrimonia eupatoria</i> ssp.eupatoria                    | Rosaceae        |
| 13   | *    | <i>Agropyron cristatum</i> ssp.pectinatum var.pectinatum    | Poaceae         |
| 14   | *    | <i>Agrostemma githago</i>                                   | Caryophyllaceae |
| 15   | **   | <i>Ailanthus altissima</i>                                  | Simaroubaceae   |
| 16   | *    | <i>Ajuga chamaepitys</i> ssp.chia                           | Lamiaceae       |
| 17   | *    | <i>Ajuga laxmannii</i>                                      | Lamiaceae       |
| 18   | *    | <i>Ajuga orientalis</i>                                     | Lamiaceae       |
| 19   | *    | <i>Alcea biennis</i>                                        | Malvaceae       |
| 20   | *    | <i>Alcea setosa</i>                                         | Malvaceae       |
| 21   | *    | <i>Alkanna tinctoria</i> ssp.tinctoria                      | Lamiaceae       |
| 22   | *    | <i>Alliaria petiolata</i>                                   | Brassicaceae    |
| 23   | **   | <i>Allium cepa</i>                                          | Amaryllidaceae  |
| 24   | **   | <i>Allium sativum</i>                                       | Amaryllidaceae  |
| 25   | *    | <i>Allium scorodoprasum</i> ssp.rotundum                    | Amaryllidaceae  |
| 26   | *    | <i>Alnus glutinosa</i> ssp.glutinosa                        | Betulaceae      |
| 27   | *    | <i>Althaea cannabina</i>                                    | Malvaceae       |
| 28   | *    | <i>Althaea hirsuta</i>                                      | Malvaceae       |
| 29   | *    | <i>Althaea officinalis</i>                                  | Malvaceae       |
| 30   | *    | <i>Alyssum sibiricum</i>                                    | Brassicaceae    |
| 31   | *    | <i>Amaranthus retroflexus</i>                               | Amaranthaceae   |
| 32   | *    | <i>Ammi majus</i>                                           | Apiaceae        |
| 33   | *    | <i>Ammi visnaga</i>                                         | Apiaceae        |
| 34   | *    | <i>Anacamptis pyramidalis</i>                               | Orchidaceae     |
| 35   | *    | <i>Anagallis arvensis</i> var.arvensis                      | Primulaceae     |

| S/No | Code | Botanical Name                         | Family           |
|------|------|----------------------------------------|------------------|
| 36   | *    | Anagallis arvensis var.caerulea        | Primulaceae      |
| 37   | *    | Anchusa azurea var.azurea              | Boraginaceae     |
| 38   | *    | Anchusa hybrida                        | Boraginaceae     |
| 39   | *    | Andrachne telephioides                 | Phyllanthaceae   |
| 40   | *    | Anemone coronaria                      | Ranunculaceae    |
| 41   | *    | Anethum graveolens                     | Apiaceae         |
| 42   | *    | Angelica sylvestris var.sylvestris     | Apiaceae         |
| 43   | *    | Anthemis chia                          | Asteraceae       |
| 44   | *    | Anthemis cotula                        | Asteraceae       |
| 45   | *    | Anthemis cretica ssp.tenuiloba         | Asteraceae       |
| 46   | *    | Anthriscus cerefolium                  | Apiaceae         |
| 47   | *    | Apium nodiflorum                       | Apiaceae         |
| 48   | *    | Arbutus unedo                          | Ericaceae        |
| 49   | *    | Arceuthobium oxycedri                  | Santalaceae      |
| 50   | *    | Arctium minus var.minus                | Asteraceae       |
| 51   | *    | Arenaria serpyllifolia ssp.leptoclados | Caryophyllaceae  |
| 52   | *    | Aristolochia pallida                   | Aristolochiaceae |
| 53   | *    | Artemisia absinthium                   | Asteraceae       |
| 54   | *    | Artemisia annua                        | Asteraceae       |
| 55   | *    | Artemisia santonicum ssp.patens        | Asteraceae       |
| 56   | *    | Artemisia vulgaris                     | Asteraceae       |
| 57   | *    | Arum elongatum                         | Araceae          |
| 58   | *    | Arum italicum                          | Araceae          |
| 59   | *    | Arum maculatum                         | Araceae          |
| 60   | *    | Arum orientale                         | Araceae          |
| 61   | *    | Arundo donax                           | Poaceae          |
| 62   | *    | Asparagus acutifolius                  | Asparagaceae     |
| 63   | *    | Asparagus aphyllus ssp.orientalis      | Asparagaceae     |
| 64   | *    | Asperugo procumbens                    | Boraginaceae     |
| 65   | *    | Asphodelus aestivus                    | Xanthorrhoeaceae |
| 66   | *    | Asphodelus fistulosus                  | Xanthorrhoeaceae |
| 67   | *    | Asphodelus ramosus                     | Xanthorrhoeaceae |
| 68   | *    | Asplenium adiantum-nigrum              | Aspleniaceae     |
| 69   | *    | Asplenium ceterach                     | Aspleniaceae     |
| 70   | *    | Asplenium scolopendrium                | Aspleniaceae     |
| 71   | *    | Asplenium trichomanes ssp.trichomanes  | Aspleniaceae     |
| 72   | *    | Asteriscus spinosus                    | Asteraceae       |
| 73   | *    | Atropa belladonna                      | Solanaceae       |
| 74   | *    | Aurinia saxatilis ssp.orientalis       | Brassicaceae     |
| 75   | *    | Avena barbata ssp.barbata              | Poaceae          |
| 76   | *    | Avena fatua var.fatua                  | Poaceae          |
| 77   | **   | Avena sativa                           | Poaceae          |
| 78   | *    | Ballota nigra ssp.anatolica            | Boraginaceae     |
| 79   | *    | Ballota nigra ssp.nigra                | Boraginaceae     |
| 80   | *    | Barbarea vulgaris ssp.vulgaris         | Brassicaceae     |
| 81   | *    | Bellis perennis                        | Asteraceae       |
| 82   | **   | Berberis vulgaris                      | Berberidaceae    |
| 83   | *    | Beta maritima var.maritima             | Amaranthaceae    |

| S/No | Code | Botanical Name                                 | Family         |
|------|------|------------------------------------------------|----------------|
| 84   | *    | <i>Bifora radians</i>                          | Apiaceae       |
| 85   | *    | <i>Bifora testiculata</i>                      | Apiaceae       |
| 86   | *    | <i>Biserrula pelecinus</i>                     | Fabaceae       |
| 87   | *    | <i>Bituminaria bituminosa</i>                  | Fabaceae       |
| 88   | *    | <i>Borago officinalis</i>                      | Boraginaceae   |
| 89   | *    | <i>Boreava orientalis</i>                      | Brassicaceae   |
| 90   | *    | <i>Brassica nigra</i>                          | Brassicaceae   |
| 91   | **   | <i>Brassica oleracea</i>                       | Brassicaceae   |
| 92   | **   | <i>Buxus sempervirens</i>                      | Buxaceae       |
| 93   | *    | <i>Cakile maritima</i>                         | Brassicaceae   |
| 94   | *    | <i>Calendula arvensis</i>                      | Asteraceae     |
| 95   | *    | <i>Calendula officinalis</i>                   | Asteraceae     |
| 96   | *    | <i>Calepina irregularis</i>                    | Brassicaceae   |
| 97   | *    | <i>Calluna vulgaris</i>                        | Ericaceae      |
| 98   | *    | <i>Calystegia silvatica</i>                    | Convolvulaceae |
| 99   | *    | <i>Campanula rapunculus ssp.rapunculus</i>     | Campanulaceae  |
| 100  | *    | <i>Capparis spinosa</i>                        | Capparidaceae  |
| 101  | *    | <i>Capsella bursa-pastoris</i>                 | Brassicaceae   |
| 102  | *    | <i>Cardamine uliginosa</i>                     | Brassicaceae   |
| 103  | *    | <i>Cardopatum corymbosum</i>                   | Asteraceae     |
| 104  | *    | <i>Carduus acanthoides ssp.acanthoides</i>     | Asteraceae     |
| 105  | *    | <i>Carduus nutans ssp.leiophyllus</i>          | Asteraceae     |
| 106  | *    | <i>Carduus nutans ssp.nutans</i>               | Asteraceae     |
| 107  | *    | <i>Carduus pycnocephalus ssp.albidus</i>       | Asteraceae     |
| 108  | *    | <i>Carlina corymbosa</i>                       | Asteraceae     |
| 109  | *    | <i>Carlina lanata</i>                          | Asteraceae     |
| 110  | *    | <i>Carpinus betulus</i>                        | Betulaceae     |
| 111  | *    | <i>Carpinus orientalis ssp.orientalis</i>      | Betulaceae     |
| 112  | *    | <i>Carthamus dentatus</i>                      | Asteraceae     |
| 113  | *    | <i>Carthamus lanatus</i>                       | Asteraceae     |
| 114  | *    | <i>Castanea sativa</i>                         | Fagaceae       |
| 115  | *    | <i>Caucalis platycarpus</i>                    | Apiaceae       |
| 116  | **   | <i>Cedrus libani var.libani</i>                | Apiaceae       |
| 117  | **   | <i>Celtis australis</i>                        | Cannabaceae    |
| 118  | *    | <i>Centaurea consanguinea</i>                  | Asteraceae     |
| 119  | *    | <i>Centaurea iberica</i>                       | Asteraceae     |
| 120  | *    | <i>Centaurea solstitialis ssp.solstitialis</i> | Asteraceae     |
| 121  | *    | <i>Centaurea virgata</i>                       | Asteraceae     |
| 122  | *    | <i>Centaurium erythraea ssp.erythraea</i>      | Gentianaceae   |
| 123  | *    | <i>Centaurium erythraea ssp.rumelicum</i>      | Gentianaceae   |
| 124  | *    | <i>Centaurium erythraea ssp.turcicum</i>       | Gentianaceae   |
| 125  | *    | <i>Centaurium maritimum</i>                    | Gentianaceae   |
| 126  | *    | <i>Centaurium pulchellum</i>                   | Gentianaceae   |
| 127  | **   | <i>Cerasus avium</i>                           | Rosaceae       |
| 128  | **   | <i>Cerasus mahaleb var.mahaleb</i>             | Rosaceae       |
| 129  | **   | <i>Cerasus vulgaris</i>                        | Rosaceae       |
| 130  | *    | <i>Ceratocephala falcata</i>                   | Ranunculaceae  |
| 131  | **   | <i>Cercis siliquastrum ssp.siliquastrum</i>    | Fabaceae       |



| S/No | Code | Botanical Name                                               | Family         |
|------|------|--------------------------------------------------------------|----------------|
| 132  | *    | <i>Cerithe minor</i> ssp. <i>auriculata</i>                  | Boraginaceae   |
| 133  | *    | <i>Chelidonium majus</i>                                     | Papaveraceae   |
| 134  | *    | <i>Chenopodium album</i> ssp. <i>album</i> var. <i>album</i> | Amaranthaceae  |
| 135  | *    | <i>Chenopodium botrys</i>                                    | Amaranthaceae  |
| 136  | *    | <i>Chenopodium murale</i>                                    | Amaranthaceae  |
| 137  | *    | <i>Chondrilla juncea</i> ssp. <i>juncea</i>                  | Asteraceae     |
| 138  | *    | <i>Chrozophora tinctoria</i>                                 | Euphorbiaceae  |
| 139  | *    | <i>Cicer montbretii</i>                                      | Fabaceae       |
| 140  | *    | <i>Cichorium intybus</i>                                     | Asteraceae     |
| 141  | *    | <i>Cichorium pumilum</i>                                     | Asteraceae     |
| 142  | *    | <i>Cionura erecta</i>                                        | Apocynaceae    |
| 143  | *    | <i>Cirsium arvense</i>                                       | Asteraceae     |
| 144  | *    | <i>Cirsium creticum</i> ssp. <i>creticum</i>                 | Asteraceae     |
| 145  | *    | <i>Cirsium hypoleucum</i>                                    | Asteraceae     |
| 146  | *    | <i>Cirsium italicum</i>                                      | Asteraceae     |
| 147  | *    | <i>Cirsium vulgare</i>                                       | Asteraceae     |
| 148  | *    | <i>Cistus creticus</i>                                       | Cistaceae      |
| 149  | *    | <i>Cistus salviifolius</i>                                   | Cistaceae      |
| 150  | **   | <i>Citrus limon</i>                                          | Rutaceae       |
| 151  | **   | <i>Citrus sinensis</i>                                       | Rutaceae       |
| 152  | *    | <i>Clematis cirrhosa</i>                                     | Ranunculaceae  |
| 153  | *    | <i>Clematis flammula</i>                                     | Ranunculaceae  |
| 154  | *    | <i>Clematis vitalba</i>                                      | Ranunculaceae  |
| 155  | *    | <i>Clematis viticella</i>                                    | Ranunculaceae  |
| 156  | *    | <i>Clinopodium alpinum</i>                                   | Lamiaceae      |
| 157  | *    | <i>Clinopodium nepeta</i> ssp. <i>glandulosum</i>            | Lamiaceae      |
| 158  | *    | <i>Clinopodium vulgare</i> ssp. <i>arundanum</i>             | Lamiaceae      |
| 159  | *    | <i>Clinopodium vulgare</i> ssp. <i>vulgare</i>               | Lamiaceae      |
| 160  | *    | <i>Cnicus benedictus</i>                                     | Asteraceae     |
| 161  | *    | <i>Colutea cilicica</i>                                      | Fabaceae       |
| 162  | *    | <i>Conium maculatum</i>                                      | Apiaceae       |
| 163  | *    | <i>Consolida regalis</i> ssp. <i>paniculata</i>              | Ranunculaceae  |
| 164  | **   | <i>Convallaria majalis</i>                                   | Asparagaceae   |
| 165  | *    | <i>Convolvulus arvensis</i>                                  | Convolvulaceae |
| 166  | *    | <i>Conyza canadensis</i>                                     | Asteraceae     |
| 167  | **   | <i>Coriandrum sativum</i>                                    | Apiaceae       |
| 168  | *    | <i>Cornus mas</i>                                            | Cornaceae      |
| 169  | *    | <i>Cornus sanguinea</i> ssp. <i>australis</i>                | Cornaceae      |
| 170  | **   | <i>Corylus avellana</i> var. <i>avellana</i>                 | Fagaceae       |
| 171  | *    | <i>Cota altissima</i>                                        | Asteraceae     |
| 172  | *    | <i>Cota austriaca</i>                                        | Asteraceae     |
| 173  | *    | <i>Cota tinctoria</i> var. <i>pallida</i>                    | Asteraceae     |
| 174  | *    | <i>Cota tinctoria</i> var. <i>tinctoria</i>                  | Asteraceae     |
| 175  | *    | <i>Cotinus coggyria</i>                                      | Anacardiaceae  |
| 176  | *    | <i>Cotoneaster nummularia</i>                                | Asteraceae     |
| 177  | *    | <i>Crataegus monogyna</i> var. <i>monogyna</i>               | Asteraceae     |
| 178  | *    | <i>Crataegus pentagyna</i>                                   | Asteraceae     |
| 179  | *    | <i>Crepis foetida</i> ssp. <i>foetida</i>                    | Asteraceae     |

| S/No | Code | Botanical Name                                        | Family          |
|------|------|-------------------------------------------------------|-----------------|
| 180  | *    | <i>Crepis foetida</i> ssp. <i>rhoeadifolia</i>        | Asteraceae      |
| 181  | *    | <i>Crepis sancta</i> ssp. <i>nemausensis</i>          | Asteraceae      |
| 182  | *    | <i>Crepis vesicaria</i>                               | Asteraceae      |
| 183  | *    | <i>Crepis zacintha</i>                                | Asteraceae      |
| 184  | *    | <i>Cruciata taurica</i>                               | Rubiaceae       |
| 185  | *    | <i>Cupressus sempervirens</i>                         | Cupressaceae    |
| 186  | *    | <i>Cuscuta campestris</i>                             | Convolvulaceae  |
| 187  | *    | <i>Cuscuta epithymum</i> ssp. <i>epithymum</i>        | Convolvulaceae  |
| 188  | *    | <i>Cuscuta europaea</i>                               | Convolvulaceae  |
| 189  | *    | <i>Cuscuta planiflora</i>                             | Convolvulaceae  |
| 190  | *    | <i>Cyanus depressus</i>                               | Asteraceae      |
| 191  | *    | <i>Cyanus segetum</i>                                 | Asteraceae      |
| 192  | *    | <i>Cyclamen coum</i> ssp. <i>coum</i>                 | Primulaceae     |
| 193  | **   | <i>Cydonia oblonga</i>                                | Rosaceae        |
| 194  | *    | <i>Cynanchum acutum</i> ssp. <i>acutum</i>            | Apocynaceae     |
| 195  | *    | <i>Cynodon dactylon</i> var. <i>dactylon</i>          | Poaceae         |
| 196  | *    | <i>Cynodon dactylon</i> var. <i>villosus</i>          | Poaceae         |
| 197  | *    | <i>Cynoglossum creticum</i>                           | Boraginaceae    |
| 198  | *    | <i>Cynoglossum officinale</i> ssp. <i>officinale</i>  | Boraginaceae    |
| 199  | *    | <i>Cyperus glaber</i>                                 | Cypraceae       |
| 200  | *    | <i>Cyperus longus</i> ssp. <i>longus</i>              | Cypraceae       |
| 201  | *    | <i>Cyperus rotundus</i>                               | Cypraceae       |
| 202  | *    | <i>Dactylis glomerata</i> ssp. <i>hispanica</i>       | Poaceae         |
| 203  | *    | <i>Danae racemosa</i>                                 | Asparagaceae    |
| 204  | *    | <i>Daphne pontica</i> ssp. <i>pontica</i>             | Thymelaeaceae   |
| 205  | *    | <i>Datura stramonium</i> var. <i>stramonium</i>       | Solanaceae      |
| 206  | *    | <i>Daucus carota</i>                                  | Apiaceae        |
| 207  | *    | <i>Dianthus pubescens</i>                             | Caryophyllaceae |
| 208  | *    | <i>Dianthus zonatus</i> var. <i>hypochlorus</i>       | Caryophyllaceae |
| 209  | *    | <i>Dichodon viscosa</i> (= <i>Cerastium dubium</i> )  | Caryophyllaceae |
| 210  | *    | <i>Digitalis ferruginea</i> ssp. <i>ferruginea</i>    | Plantaginaceae  |
| 211  | *    | <i>Dioscorea communis</i>                             | Dioscoreaceae   |
| 212  | *    | <i>Diploaxis tenuifolia</i>                           | Brassicaceae    |
| 213  | *    | <i>Dipsacus laciniatus</i>                            | Dipsacaceae     |
| 214  | *    | <i>Doronicum orientale</i>                            | Asteraceae      |
| 215  | *    | <i>Dracunculus vulgaris</i>                           | Araceae         |
| 216  | *    | <i>Drimia maritima</i>                                | Asparagaceae    |
| 217  | *    | <i>Dryopteris filix-mas</i>                           | Dryopteridaceae |
| 218  | *    | <i>Ecballium elaterium</i>                            | Cucurbitaceae   |
| 219  | *    | <i>Echinophora tenuifolia</i> ssp. <i>sibtorpiana</i> | Apiaceae        |
| 220  | *    | <i>Echinops ritro</i>                                 | Apiaceae        |
| 221  | *    | <i>Echium angustifolium</i>                           | Boraginaceae    |
| 222  | *    | <i>Echium italicum</i>                                | Boraginaceae    |
| 223  | *    | <i>Echium plantagineum</i>                            | Boraginaceae    |
| 224  | *    | <i>Echium vulgare</i>                                 | Boraginaceae    |
| 225  | *    | <i>Elaeagnus angustifolius</i>                        | Elaeagnaceae    |
| 226  | *    | <i>Elymus farctus</i> ssp. <i>farctus</i>             | Poaceae         |
| 227  | *    | <i>Elymus repens</i>                                  | Poaceae         |

| S/No | Code | Botanical Name                                 | Family        |
|------|------|------------------------------------------------|---------------|
| 228  | *    | <i>Ephedra foeminea</i>                        | Ephedraceae   |
| 229  | *    | <i>Epilobium hirsutum</i>                      | Onagraceae    |
| 230  | *    | <i>Epilobium montanum</i>                      | Onagraceae    |
| 231  | *    | <i>Epilobium parviflorum</i>                   | Onagraceae    |
| 232  | *    | <i>Equisetum arvense</i>                       | Equisetaceae  |
| 233  | *    | <i>Equisetum giganteum</i>                     | Equisetaceae  |
| 234  | *    | <i>Equisetum hyemale</i>                       | Equisetaceae  |
| 235  | *    | <i>Equisetum palustre</i>                      | Equisetaceae  |
| 236  | *    | <i>Equisetum telmatei</i>                      | Equisetaceae  |
| 237  | *    | <i>Erica arborea</i>                           | Ericaceae     |
| 238  | *    | <i>Erica manipuliflora</i>                     | Ericaceae     |
| 239  | **   | <i>Eriobotrya japonica</i>                     | Rosaceae      |
| 240  | *    | <i>Erodium ciconium</i>                        | Geraniaceae   |
| 241  | *    | <i>Erodium cicutarium</i> ssp.cicutarium       | Geraniaceae   |
| 242  | *    | <i>Erodium moschatum</i>                       | Geraniaceae   |
| 243  | *    | <i>Eryngium campestre</i> var.campestre        | Apiaceae      |
| 244  | *    | <i>Eryngium campestre</i> var.virens           | Apiaceae      |
| 245  | *    | <i>Eryngium creticum</i>                       | Apiaceae      |
| 246  | *    | <i>Eupatorium cannabinum</i>                   | Asteraceae    |
| 247  | *    | <i>Euphorbia aleppica</i>                      | Euphorbiaceae |
| 248  | *    | <i>Euphorbia amygdaloides</i> ssp.amygdaloides | Euphorbiaceae |
| 249  | *    | <i>Euphorbia chamaesyce</i>                    | Euphorbiaceae |
| 250  | *    | <i>Euphorbia exigua</i> ssp.exigua             | Euphorbiaceae |
| 251  | *    | <i>Euphorbia falcata</i> ssp.falcata           | Euphorbiaceae |
| 252  | *    | <i>Euphorbia helioscopia</i>                   | Euphorbiaceae |
| 253  | *    | <i>Euphorbia peplus</i> var.minima             | Euphorbiaceae |
| 254  | *    | <i>Euphorbia peplus</i> var.peplus             | Euphorbiaceae |
| 255  | *    | <i>Euphorbia rigida</i>                        | Euphorbiaceae |
| 256  | *    | <i>Euphorbia seguieriana</i> ssp.seguieriana   | Euphorbiaceae |
| 257  | *    | <i>Euphorbia stricta</i>                       | Euphorbiaceae |
| 258  | *    | <i>Fagus orientalis</i>                        | Fagaceae      |
| 259  | *    | <i>Ferulago confusa</i>                        | Apiaceae      |
| 260  | *    | <i>Ferulago thirkeana</i>                      | Apiaceae      |
| 261  | **   | <i>Ficus carica</i> ssp.carica                 | Moraceae      |
| 262  | *    | <i>Filago arvensis</i>                         | Asteraceae    |
| 263  | *    | <i>Filipendula vulgaris</i>                    | Rosaceae      |
| 264  | *    | <i>Foeniculum vulgare</i>                      | Apiaceae      |
| 265  | *    | <i>Frangula dodonei</i> ssp.dodonei            | Rhamnaceae    |
| 266  | **   | <i>Fraxinus angustifolia</i> ssp.oxycarpa      | Oleaceae      |
| 267  | **   | <i>Fraxinus excelsior</i> ssp.excelsior        | Oleaceae      |
| 268  | **   | <i>Fraxinus ornus</i> ssp.ornus                | Oleaceae      |
| 269  | *    | <i>Fumaria capreolata</i> ssp.capreolata       | Papaveraceae  |
| 270  | *    | <i>Fumaria densiflora</i>                      | Papaveraceae  |
| 271  | *    | <i>Fumaria officinalis</i> ssp.officinalis     | Papaveraceae  |
| 272  | *    | <i>Fumaria parviflora</i>                      | Papaveraceae  |
| 273  | *    | <i>Galega officinalis</i>                      | Fabaceae      |
| 274  | *    | <i>Galium aparine</i>                          | Rubiaceae     |
| 275  | *    | <i>Galium odoratum</i>                         | Rubiaceae     |

| S/No | Code | Botanical Name                                  | Family          |
|------|------|-------------------------------------------------|-----------------|
| 276  | *    | <i>Galium tricornutum</i>                       | Rubiaceae       |
| 277  | *    | <i>Galium verum</i> ssp.verum                   | Rubiaceae       |
| 278  | *    | <i>Genista tinctoria</i>                        | Fabaceae        |
| 279  | *    | <i>Geranium asphodeloides</i> ssp.asphodeloides | Geraniaceae     |
| 280  | *    | <i>Geranium molle</i>                           | Geraniaceae     |
| 281  | *    | <i>Geranium robertianum</i>                     | Geraniaceae     |
| 282  | *    | <i>Geranium rotundifolium</i>                   | Geraniaceae     |
| 283  | *    | <i>Geum urbanum</i>                             | Geraniaceae     |
| 284  | *    | <i>Gladiolus atrovioleaceus</i>                 | Iridaceae       |
| 285  | *    | <i>Gladiolus illyricus</i>                      | Iridaceae       |
| 286  | *    | <i>Gladiolus italicus</i>                       | Iridaceae       |
| 287  | *    | <i>Glaucium corniculatum</i> var.corniculatum   | Papaveraceae    |
| 288  | *    | <i>Glebionis coronaria</i>                      | Asteraceae      |
| 289  | *    | <i>Glebionis segetum</i>                        | Asteraceae      |
| 290  | *    | <i>Globularia trichosantha</i> ssp.trichosantha | Plantaginaceae  |
| 291  | *    | <i>Goniolimon incanum</i>                       | Plumbaginaceae  |
| 292  | *    | <i>Gysophia pilosa</i>                          | Caryophyllaceae |
| 293  | *    | <i>Hedera helix</i>                             | Araliaceae      |
| 294  | *    | <i>Heliotropium europaeum</i>                   | Boraginaceae    |
| 295  | *    | <i>Heliotropium hirsutissimum</i>               | Boraginaceae    |
| 296  | *    | <i>Helleborus orientalis</i>                    | Ranunculaceae   |
| 297  | *    | <i>Heracleum sphondylium</i> ssp.ternatum       | Apiaceae        |
| 298  | *    | <i>Herniaria glabra</i>                         | Caryophyllaceae |
| 299  | *    | <i>Herniaria hirsuta</i>                        | Caryophyllaceae |
| 300  | *    | <i>Hibiscus trionum</i>                         | Malvaceae       |
| 301  | *    | <i>Hordeum bulbosum</i>                         | Poaceae         |
| 302  | *    | <i>Hordeum distichon</i>                        | Poaceae         |
| 303  | *    | <i>Hordeum murinum</i> ssp.glaucum              | Poaceae         |
| 304  | *    | <i>Hordeum vulgare</i>                          | Poaceae         |
| 305  | *    | <i>Humulus lupulus</i>                          | Cannaceae       |
| 306  | *    | <i>Hylotelephium telephium</i>                  | Crassulaceae    |
| 307  | *    | <i>Hyoscyamus albus</i>                         | Solanaceae      |
| 308  | *    | <i>Hyoscyamus niger</i>                         | Solanaceae      |
| 309  | *    | <i>Hyoscyamus reticulatus</i>                   | Solanaceae      |
| 310  | *    | <i>Hypecoum procumbens</i> ssp.procumbens       | Papaveraceae    |
| 311  | *    | <i>Hypericum cerastoides</i>                    | Hypericaceae    |
| 312  | *    | <i>Hypericum montbretii</i>                     | Hypericaceae    |
| 313  | *    | <i>Hypericum perforatum</i>                     | Hypericaceae    |
| 314  | *    | <i>Hypericum perforatum</i> ssp.perforatum      | Hypericaceae    |
| 315  | *    | <i>Hypericum tetrapterum</i> var.tetrapterum    | Hypericaceae    |
| 316  | *    | <i>Hypericum triquetrifolium</i>                | Hypericaceae    |
| 317  | *    | <i>Inula britannica</i>                         | Asteraceae      |
| 318  | *    | <i>Inula oculus-christi</i>                     | Asteraceae      |
| 319  | *    | <i>Inula viscosa</i>                            | Asteraceae      |
| 320  | **   | <i>Iris germanica</i>                           | Iridaceae       |
| 321  | *    | <i>Jasminum fruticans</i>                       | Oleaceae        |
| 322  | *    | <i>Juncus acutus</i> ssp.acutus                 | Juncaceae       |
| 323  | *    | <i>Juncus inflexus</i>                          | Juncaceae       |



| S/No | Code | Botanical Name                                         | Family         |
|------|------|--------------------------------------------------------|----------------|
| 324  | **   | <i>Junglans regia</i>                                  | Junglandaceae  |
| 325  | *    | <i>Juniperus communis</i> ssp.communis                 | Juncaceae      |
| 326  | *    | <i>Juniperus oxycedrus</i> ssp.oxycedrus var.oxycedrus | Juncaceae      |
| 327  | *    | <i>Kickxia lanigera</i>                                | Plantaginaceae |
| 328  | *    | <i>Lactuca serriola</i>                                | Asteraceae     |
| 329  | *    | <i>Lactuca viminea</i>                                 | Asteraceae     |
| 330  | *    | <i>Lagoecia cuminoides</i>                             | Poaceae        |
| 331  | *    | <i>Lamium album</i> ssp.crinitum                       | Lamiaceae      |
| 332  | *    | <i>Lamium amplexicaule</i> var.amplexicaule            | Lamiaceae      |
| 333  | *    | <i>Lamium gargaricum</i> ssp.gargaricum                | Lamiaceae      |
| 334  | *    | <i>Lamium orientale</i>                                | Lamiaceae      |
| 335  | *    | <i>Lamium purpureum</i> var.purpureum                  | Lamiaceae      |
| 336  | *    | <i>Lantana camara</i>                                  | Verbenaceae    |
| 337  | *    | <i>Lapsana communis</i> ssp.intermedia                 | Asteraceae     |
| 338  | *    | <i>Laser trilobum</i>                                  | Apiaceae       |
| 339  | *    | <i>Lathyrus cicera</i>                                 | Fabaceae       |
| 340  | *    | <i>Lathyrus digitatus</i>                              | Fabaceae       |
| 341  | *    | <i>Lathyrus sativus</i>                                | Fabaceae       |
| 342  | *    | <i>Laurocerasus officinalis</i>                        | Rosaceae       |
| 343  | *    | <i>Laurus nobilis</i>                                  | Lauraceae      |
| 344  | *    | <i>Lavandula pedunculata</i> ssp.cariensis             | Lamiaceae      |
| 345  | *    | <i>Lavandula stoechas</i> ssp.stoechas                 | Lamiaceae      |
| 346  | *    | <i>Lens culinaris</i>                                  | Fabaceae       |
| 347  | *    | <i>Leontice leontopetalum</i>                          | Berberidaceae  |
| 348  | *    | <i>Leontodon hispidus</i> ssp.hispidus                 | Asteraceae     |
| 349  | *    | <i>Lepidium draba</i>                                  | Brassicaceae   |
| 350  | *    | <i>Lepidium latifolium</i>                             | Brassicaceae   |
| 351  | *    | <i>Lepidium ruderae</i>                                | Brassicaceae   |
| 352  | *    | <i>Lepidium sativum</i> ssp.sativum                    | Brassicaceae   |
| 353  | *    | <i>Leucojum aestivum</i> ssp.aestivum                  | Amaryllidaceae |
| 354  | *    | <i>Ligustrum vulgare</i>                               | Oleaceae       |
| 355  | *    | <i>Limonium angustifolium</i>                          | Plumbaginaceae |
| 356  | *    | <i>Limonium graecum</i> var.graecum                    | Plumbaginaceae |
| 357  | *    | <i>Limonium sinuatum</i>                               | Plumbaginaceae |
| 358  | *    | <i>Limonium virgatum</i>                               | Plumbaginaceae |
| 359  | *    | <i>Linum aroanium</i>                                  | Linaceae       |
| 360  | *    | <i>Linum bienne</i>                                    | Linaceae       |
| 361  | *    | <i>Linum tenuifolium</i>                               | Linaceae       |
| 362  | *    | <i>Linum trigynum</i>                                  | Linaceae       |
| 363  | *    | <i>Linum usitatissimum</i>                             | Linaceae       |
| 364  | *    | <i>Lonicera caprifolium</i>                            | Caprifoliaceae |
| 365  | *    | <i>Lonicera etrusca</i> var.etrusca                    | Caprifoliaceae |
| 366  | *    | <i>Loranthus europaeus</i>                             | Loranthaceae   |
| 367  | *    | <i>Lotus corniculatus</i> var.corniculatus             | Fabaceae       |
| 368  | *    | <i>Lupinus albus</i> ssp.albus                         | Fabaceae       |
| 369  | *    | <i>Lupinus angustifolius</i> ssp.angustifolius         | Fabaceae       |
| 370  | *    | <i>Lupinus pilosus</i>                                 | Fabaceae       |
| 371  | *    | <i>Lycopus europaeus</i>                               | Lamiaceae      |

| S/No | Code | Botanical Name                                        | Family          |
|------|------|-------------------------------------------------------|-----------------|
| 372  | *    | <i>Lysimachia punctata</i>                            | Primulaceae     |
| 373  | *    | <i>Lysimachia verticillaris</i>                       | Primulaceae     |
| 374  | *    | <i>Lysimachia vulgaris</i>                            | Primulaceae     |
| 375  | *    | <i>Lythrum salicaria</i>                              | Lythraceae      |
| 376  | *    | <i>Malus sylvestris</i> ssp.orientalis var.orientalis | Rosaceae        |
| 377  | *    | <i>Malva neglecta</i>                                 | Malvaceae       |
| 378  | *    | <i>Malva nicaensis</i>                                | Malvaceae       |
| 379  | *    | <i>Malva sylvestris</i>                               | Malvaceae       |
| 380  | *    | <i>Malvella sherardiana</i>                           | Malvaceae       |
| 381  | *    | <i>Marrubium peregrinum</i>                           | Lamiaceae       |
| 382  | *    | <i>Marrubium vulgare</i>                              | Lamiaceae       |
| 383  | *    | <i>Matricaria chamomilla</i> var.chamomilla           | Asteraceae      |
| 384  | *    | <i>Matricaria chamomilla</i> var.recutita             | Asteraceae      |
| 385  | *    | <i>Medicago minima</i> var.minima                     | Fabaceae        |
| 386  | *    | <i>Medicago orbicularis</i>                           | Fabaceae        |
| 387  | *    | <i>Medicago polymorpha</i> var.polymorpha             | Fabaceae        |
| 388  | *    | <i>Medicago rigidula</i> var.rigidula                 | Fabaceae        |
| 389  | *    | <i>Medicago x varia</i>                               | Fabaceae        |
| 390  | *    | <i>Melilotus indicus</i>                              | Fabaceae        |
| 391  | *    | <i>Melilotus officinalis</i>                          | Fabaceae        |
| 392  | *    | <i>Melissa officinalis</i> ssp.officinalis            | Lamiaceae       |
| 393  | *    | <i>Mentha aquatica</i>                                | Lamiaceae       |
| 394  | *    | <i>Mentha longifolia</i> ssp.longifolia               | Lamiaceae       |
| 395  | *    | <i>Mentha pulegium</i>                                | Lamiaceae       |
| 396  | *    | <i>Mentha spicata</i> ssp.condensata                  | Lamiaceae       |
| 397  | *    | <i>Mentha spicata</i> ssp.spicata                     | Lamiaceae       |
| 398  | *    | <i>Mentha suaveolens</i>                              | Lamiaceae       |
| 399  | *    | <i>Mentha x piperita</i>                              | Lamiaceae       |
| 400  | *    | <i>Mespilus germanica</i>                             | Rosaceae        |
| 401  | *    | <i>Micromeria graeca</i> ssp.graeca                   | Lamiaceae       |
| 402  | *    | <i>Micromeria juliana</i>                             | Lamiaceae       |
| 403  | *    | <i>Micromeria myrtifolia</i>                          | Lamiaceae       |
| 404  | *    | <i>Moenchia caerulea</i>                              | Caryophyllaceae |
| 405  | *    | <i>Moenchia mantica</i>                               | Caryophyllaceae |
| 406  | **   | <i>Morus alba</i>                                     | Moraceae        |
| 407  | *    | <i>Muscari comosum</i>                                | Asparagaceae    |
| 408  | *    | <i>Muscari neglectum</i>                              | Asparagaceae    |
| 409  | **   | <i>Myrtus communis</i> ssp.communis                   | Myrtaceae       |
| 410  | **   | <i>Narcissus tazetta</i> ssp.aureus                   | Amaryllidaceae  |
| 411  | *    | <i>Nasturtium officinale</i>                          | Brassicaceae    |
| 412  | *    | <i>Nepeta nuda</i> ssp.albiflora                      | Lamiaceae       |
| 413  | *    | <i>Nepeta nuda</i> ssp.nuda                           | Lamiaceae       |
| 414  | *    | <i>Nerium oleander</i>                                | Apocynaceae     |
| 415  | *    | <i>Neslia paniculata</i> ssp.thracica                 | Brassicaceae    |
| 416  | *    | <i>Nigella arvensis</i> var.glauca                    | Ranunculaceae   |
| 417  | *    | <i>Nigella damascena</i>                              | Ranunculaceae   |
| 418  | *    | <i>Nigella sativa</i>                                 | Ranunculaceae   |
| 419  | *    | <i>Nonea pulla</i>                                    | Boraginaceae    |

| S/No | Code | Botanical Name                                     | Family          |
|------|------|----------------------------------------------------|-----------------|
| 420  | *    | <i>Nymphaea alba</i>                               | Nymphaeaceae    |
| 421  | **   | <i>Ocimum basilicum</i>                            | Lamiaceae       |
| 422  | *    | <i>Oenanthe pimpinelloides</i>                     | Apiaceae        |
| 423  | *    | <i>Olea europaea ssp.europaea</i>                  | Oleaceae        |
| 424  | *    | <i>Onobrychis gracilis</i>                         | Fabaceae        |
| 425  | *    | <i>Ononis spinosa ssp.leiospermae</i>              | Fabaceae        |
| 426  | *    | <i>Onopordum acanthium</i>                         | Asteraceae      |
| 427  | *    | <i>Onopordum anatolicum</i>                        | Asteraceae      |
| 428  | *    | <i>Onopordum tauricum</i>                          | Asteraceae      |
| 429  | *    | <i>Opopanax hispidus</i>                           | Apiaceae        |
| 430  | **   | <i>Opuntia ficus-barbarica</i>                     | Cactaceae       |
| 431  | *    | <i>Orchis collina</i>                              | Orchidaceae     |
| 432  | *    | <i>Orchis coriophora ssp.coriophora</i>            | Orchidaceae     |
| 433  | *    | <i>Orchis morio ssp.morio</i>                      | Orchidaceae     |
| 434  | *    | <i>Orchis purpurea ssp.purpurea</i>                | Orchidaceae     |
| 435  | *    | <i>Origanum vulgare ssp.hirtum</i>                 | Lamiaceae       |
| 436  | *    | <i>Origanum vulgare ssp.viridulum</i>              | Lamiaceae       |
| 437  | *    | <i>Origanum vulgare ssp.vulgare</i>                | Lamiaceae       |
| 438  | *    | <i>Ornithogalum umbellatum</i>                     | Asparagaceae    |
| 439  | *    | <i>Orobancha minor</i>                             | Orobanchaceae   |
| 440  | *    | <i>Oryza sativa ssp.sativa</i>                     | Poaceae         |
| 441  | *    | <i>Oxalis articulata</i>                           | Oxalidaceae     |
| 442  | *    | <i>Oxalis corniculata</i>                          | Oxalidaceae     |
| 443  | *    | <i>Paeonia mascula ssp.mascula</i>                 | Paeoniaceae     |
| 444  | *    | <i>Paliurus spina-christii</i>                     | Rhamnaceae      |
| 445  | *    | <i>Pancratium maritimum</i>                        | Amaryllidaceae  |
| 446  | *    | <i>Panicum miliaceum</i>                           | Poaceae         |
| 447  | *    | <i>Papaver dubium ssp.lecoqii var.lecoqii</i>      | Papaveraceae    |
| 448  | *    | <i>Papaver rhoeas</i>                              | Papaveraceae    |
| 449  | *    | <i>Parietaria judaica</i>                          | Urticaceae      |
| 450  | *    | <i>Parietaria officinalis</i>                      | Urticaceae      |
| 451  | *    | <i>Paronychia argentea var.argentea</i>            | Caryophyllaceae |
| 452  | *    | <i>Perioploca graeca var.graeca</i>                | Apocynaceae     |
| 453  | *    | <i>Persica vulgaris</i>                            | Rosaceae        |
| 454  | *    | <i>Persicaria lapathifolium ssp. lapathifolium</i> | Polygonaceae    |
| 455  | *    | <i>Petasites hybridus</i>                          | Asteraceae      |
| 456  | **   | <i>Petroselinum crispum</i>                        | Apiaceae        |
| 457  | *    | <i>Phalaris arundinacea</i>                        | Lamiaceae       |
| 458  | *    | <i>Phillyrea latifolia</i>                         | Oleaceae        |
| 459  | *    | <i>Phlomis pungens ssp.hispida</i>                 | Lamiaceae       |
| 460  | *    | <i>Phragmites australis</i>                        | Poaceae         |
| 461  | *    | <i>Physalis alkekengi</i>                          | Solanaceae      |
| 462  | *    | <i>Phytolacca americana</i>                        | Phytolaccaceae  |
| 463  | *    | <i>Picnemon acarna</i>                             | Asteraceae      |
| 464  | *    | <i>Picris strigosa ssp.strigosa</i>                | Asteraceae      |
| 465  | *    | <i>Pimpinella anisum</i>                           | Apiaceae        |
| 466  | *    | <i>Pinus brutia var.brutia f. brutia</i>           | Pianaceae       |
| 467  | *    | <i>Pinus nigra ssp.nigra var.pallasiana</i>        | Pianaceae       |

| S/No | Code | Botanical Name                                 | Family           |
|------|------|------------------------------------------------|------------------|
| 468  | *    | <i>Pinus pinea</i>                             | Pianaceae        |
| 469  | *    | <i>Pinus sylvestris</i> var.hamata f. hamata   | Pianaceae        |
| 470  | *    | <i>Pistacia atlantica</i>                      | Anacardiaceae    |
| 471  | *    | <i>Pistacia lentiscus</i>                      | Anacardiaceae    |
| 472  | *    | <i>Pistacia terebinthus</i> ssp.palaestina     | Anacardiaceae    |
| 473  | *    | <i>Pistacia terebinthus</i> ssp.terebinthus    | Anacardiaceae    |
| 474  | *    | <i>Plantago afra</i>                           | Plantaginaceae   |
| 475  | *    | <i>Plantago coronopus</i> ssp.commutata        | Plantaginaceae   |
| 476  | *    | <i>Plantago coronopus</i> ssp.coronopus        | Plantaginaceae   |
| 477  | *    | <i>Plantago lagopus</i>                        | Plantaginaceae   |
| 478  | *    | <i>Plantago lanceolata</i>                     | Plantaginaceae   |
| 479  | *    | <i>Plantago major</i> ssp.intermedia           | Plantaginaceae   |
| 480  | *    | <i>Plantago major</i> ssp.major                | Plantaginaceae   |
| 481  | *    | <i>Platanus orientalis</i>                     | Platanaceae      |
| 482  | *    | <i>Plumbago europaea</i>                       | Plumbaginaceae   |
| 483  | *    | <i>Poa bulbosa</i>                             | Poaceae          |
| 484  | *    | <i>Polycarpon tetraphyllum</i>                 | Caryophyllaceae  |
| 485  | *    | <i>Polygala anatolica</i>                      | Polygalaceae     |
| 486  | *    | <i>Polygala vulgaris</i>                       | Polygalaceae     |
| 487  | *    | <i>Polygonum arenastrum</i>                    | Polygonaceae     |
| 488  | *    | <i>Polygonum aviculare</i>                     | Polygonaceae     |
| 489  | *    | <i>Polygonum equisetiforme</i>                 | Polygonaceae     |
| 490  | *    | <i>Polygonum maritimum</i>                     | Polygonaceae     |
| 491  | *    | <i>Polypodium vulgare</i> ssp.vulgare          | Polypodiaceae    |
| 492  | *    | <i>Populus alba</i>                            | Salicaceae       |
| 493  | *    | <i>Populus nigra</i> ssp.nigra                 | Salicaceae       |
| 494  | *    | <i>Populus tremula</i>                         | Salicaceae       |
| 495  | *    | <i>Portulaca oleracea</i>                      | Portulacaceae    |
| 496  | *    | <i>Potentilla erecta</i>                       | Rosaceae         |
| 497  | *    | <i>Potentilla recta</i>                        | Rosaceae         |
| 498  | *    | <i>Potentilla reptans</i>                      | Rosaceae         |
| 499  | *    | <i>Primula acaulis</i> ssp.acaulis             | Primulaceae      |
| 500  | *    | <i>Prunella laciniata</i>                      | Lamiaceae        |
| 501  | *    | <i>Prunella vulgaris</i>                       | Lamiaceae        |
| 502  | *    | <i>Prunus divaricata</i> var.divaricata        | Rosaceae         |
| 503  | *    | <i>Prunus spinosa</i>                          | Rosaceae         |
| 504  | *    | <i>Prunus x domestica</i>                      | Rosaceae         |
| 505  | *    | <i>Pteridium aquilinum</i>                     | Dennstaedtiaceae |
| 506  | *    | <i>Pulicaria dysenterica</i> ssp.dysenterica   | Asteraceae       |
| 507  | *    | <i>Pulicaria vulgaris</i>                      | Asteraceae       |
| 508  | *    | <i>Punica granatum</i>                         | Punicaceae       |
| 509  | *    | <i>Pyracantha coccinea</i>                     | Rosaceae         |
| 510  | *    | <i>Pyrus amygdaliformis</i> var.amygdaliformis | Rosaceae         |
| 511  | *    | <i>Pyrus communis</i> ssp.communis             | Rosaceae         |
| 512  | *    | <i>Pyrus elaeagnifolia</i> ssp.bulgarica       | Rosaceae         |
| 513  | *    | <i>Pyrus elaeagnifolia</i> ssp.elaeagnifolia   | Rosaceae         |
| 514  | *    | <i>Quercus cerris</i>                          | Fagaceae         |
| 515  | *    | <i>Quercus coccifera</i>                       | Fagaceae         |

| S/No | Code | Botanical Name                         | Family        |
|------|------|----------------------------------------|---------------|
| 516  | *    | Quercus frainetto                      | Fagaceae      |
| 517  | *    | Quercus ilex                           | Fagaceae      |
| 518  | *    | Quercus infectoria ssp.infectoria      | Fagaceae      |
| 519  | *    | Quercus petraea ssp.iberica            | Fagaceae      |
| 520  | *    | Quercus pubescens                      | Fagaceae      |
| 521  | *    | Quercus robur ssp.robur                | Fagaceae      |
| 522  | *    | Ranunculus arvensis                    | Ranunculaceae |
| 523  | *    | Ranunculus constantinopolitanus        | Ranunculaceae |
| 524  | *    | Ranunculus ficaria ssp.bulbifera       | Ranunculaceae |
| 525  | *    | Ranunculus ficaria ssp.ficariiformis   | Ranunculaceae |
| 526  | *    | Ranunculus marginatus                  | Ranunculaceae |
| 527  | *    | Ranunculus muricatus                   | Ranunculaceae |
| 528  | *    | Ranunculus repens                      | Ranunculaceae |
| 529  | *    | Ranunculus scleratus                   | Ranunculaceae |
| 530  | *    | Raphanus raphanistrum ssp.raphanistrum | Brassicaceae  |
| 531  | *    | Reseda lutea var. lutea                | Resedaceae    |
| 532  | *    | Rhododendron luteum                    | Ericaceae     |
| 533  | *    | Rhododendron ponticum                  | Ericaceae     |
| 534  | *    | Rhus coriaria                          | Anacardiaceae |
| 535  | *    | Ricinus communis                       | Euphorbiaceae |
| 536  | **   | Robinia pseudoacacia                   | Fabaceae      |
| 537  | *    | Rosa canina                            | Rosaceae      |
| 538  | *    | Rosa foetida                           | Rosaceae      |
| 539  | *    | Rosa gallica                           | Rosaceae      |
| 540  | *    | Rosa sempervirens                      | Rosaceae      |
| 541  | *    | Rosmarinus officinalis                 | Lamiaceae     |
| 542  | *    | Rubia tinctorum                        | Rubiaceae     |
| 543  | *    | Rubus caesius                          | Rosaceae      |
| 544  | *    | Rubus canescens var.canescens          | Rosaceae      |
| 545  | *    | Rubus canescens var.glabratus          | Rosaceae      |
| 546  | *    | Rubus ibericus                         | Rosaceae      |
| 547  | *    | Rubus idaeus ssp.idaeus                | Rosaceae      |
| 548  | *    | Rubus sanctus                          | Rosaceae      |
| 549  | *    | Rubus tereticaulis                     | Rosaceae      |
| 550  | *    | Rumex acetocella                       | Polygonaceae  |
| 551  | *    | Rumex conglomeratus                    | Polygonaceae  |
| 552  | *    | Rumex crispus                          | Polygonaceae  |
| 553  | *    | Rumex cristatus                        | Polygonaceae  |
| 554  | *    | Rumex obtusifolius ssp.subalpinus      | Polygonaceae  |
| 555  | *    | Rumex patertia                         | Polygonaceae  |
| 556  | *    | Rumex pulcher                          | Polygonaceae  |
| 557  | *    | Rumex tuberosus                        | Polygonaceae  |
| 558  | *    | Ruscus aculeatus                       | Asparagaceae  |
| 559  | *    | Ruscus hypoglossum                     | Asparagaceae  |
| 560  | *    | Ruta montana                           | Rutaceae      |
| 561  | *    | Salix alba ssp. alba                   | Salicaceae    |
| 562  | *    | Salix babylonica var. babylonica       | Salicaceae    |
| 563  | *    | Salix caprae                           | Salicaceae    |



| S/No | Code | Botanical Name                      | Family           |
|------|------|-------------------------------------|------------------|
| 564  | *    | Salsola soda                        | Amaranthaceae    |
| 565  | *    | Salvia aethiopsis                   | Lamiaceae        |
| 566  | *    | Salvia pinnata                      | Lamiaceae        |
| 567  | *    | Salvia sclarea                      | Lamiaceae        |
| 568  | *    | Salvia tomentosa                    | Lamiaceae        |
| 569  | *    | Salvia verbenaca                    | Lamiaceae        |
| 570  | *    | Salvia verticillata var.amasiaca    | Lamiaceae        |
| 571  | *    | Salvia virgata                      | Lamiaceae        |
| 572  | *    | Salvia viridis                      | Lamiaceae        |
| 573  | *    | Sambucus ebulus                     | Adoxaceae        |
| 574  | *    | Sambucus nigra                      | Adoxaceae        |
| 575  | *    | Sanguisorba minor ssp. minor        | Rosaceae         |
| 576  | *    | Sanicula europaea                   | Apiaceae         |
| 577  | *    | Saponaria officinalis               | Caryophyllaceae  |
| 578  | *    | Sarcopoterium spinosum              | Rosaceae         |
| 579  | *    | Satureja hortensis                  | Lamiaceae        |
| 580  | *    | Scabiosa argentea                   | Dipsacaceae      |
| 581  | *    | Scandix iberica                     | Apiaceae         |
| 582  | *    | Scandix pecten-veneris              | Apiaceae         |
| 583  | *    | Schenkia spicata                    | Gentianaceae     |
| 584  | *    | Scilla bifolia                      | Asparagaceae     |
| 585  | *    | Scirpoides holoschoenus             | Cyperaceae       |
| 586  | *    | Scolymus hispanicus ssp. hispanicus | Asteraceae       |
| 587  | *    | Scorzonera mollis ssp. mollis       | Asteraceae       |
| 588  | *    | Scrophularia canina ssp. bicolor    | Scrophulariaceae |
| 589  | *    | Scrophularia nodosa                 | Scrophulariaceae |
| 590  | *    | Scrophularia umbrosa                | Scrophulariaceae |
| 591  | *    | Secale cereale var. cereale         | Poaceae          |
| 592  | *    | Sedum album                         | Crassulaceae     |
| 593  | *    | Sedum pallidum                      | Crassulaceae     |
| 594  | *    | Senecio vernalis                    | Asteraceae       |
| 595  | *    | Seseli tortuosum                    | Apiaceae         |
| 596  | *    | Sideritis lanata                    | Lamiaceae        |
| 597  | *    | Sideritis montana ssp.montana       | Lamiaceae        |
| 598  | *    | Silene armeria                      | Caryophyllaceae  |
| 599  | *    | Silene compacta                     | Caryophyllaceae  |
| 600  | *    | Silene conica                       | Caryophyllaceae  |
| 601  | *    | Silene coronaria                    | Caryophyllaceae  |
| 602  | *    | Silene dichotoma ssp.dichotoma      | Caryophyllaceae  |
| 603  | *    | Silene vulgaris var. vulgaris       | Caryophyllaceae  |
| 604  | *    | Silybum marianum ssp. marianum      | Asteraceae       |
| 605  | *    | Sinapis alba ssp. alba              | Brassicaceae     |
| 606  | *    | Sinapis arvensis                    | Brassicaceae     |
| 607  | *    | Smilax excelsa                      | Smilacaceae      |
| 608  | *    | Smyrnum olusatrum                   | Apiaceae         |
| 609  | *    | Solanum alatum                      | Solanaceae       |
| 610  | *    | Solanum americanum                  | Solanaceae       |
| 611  | *    | Solanum dulcamara                   | Solanaceae       |

| S/No | Code | Botanical Name                                                          | Family          |
|------|------|-------------------------------------------------------------------------|-----------------|
| 612  | *    | <i>Sonchus asper</i> ssp. <i>glaucescens</i>                            | Asteraceae      |
| 613  | *    | <i>Sonchus oleraceus</i>                                                | Asteraceae      |
| 614  | *    | <i>Sorbus torminalis</i> var. <i>torminalis</i>                         | Rosaceae        |
| 615  | *    | <i>Sorghum halepense</i> var. <i>halepense</i>                          | Poaceae         |
| 616  | *    | <i>Spartium junceum</i>                                                 | Fabaceae        |
| 617  | **   | <i>Spinacia oleracea</i>                                                | Amaranthaceae   |
| 618  | *    | <i>Stachys annua</i> ssp. <i>annua</i> var. <i>annua</i>                | Lamiaceae       |
| 619  | *    | <i>Stachys arvensis</i>                                                 | Lamiaceae       |
| 620  | *    | <i>Stachys byzantina</i>                                                | Lamiaceae       |
| 621  | *    | <i>Stachys palustris</i>                                                | Lamiaceae       |
| 622  | *    | <i>Stellaria media</i>                                                  | Caryophyllaceae |
| 623  | *    | <i>Stellaria pallida</i>                                                | Caryophyllaceae |
| 624  | *    | <i>Symphytum officinale</i>                                             | Boraginaceae    |
| 625  | **   | <i>Tamarix smyrnensis</i>                                               | Tamaricaceae    |
| 626  | **   | <i>Tamarix tetrandra</i>                                                | Tamaricaceae    |
| 627  | *    | <i>Tanacetum parthenium</i>                                             | Asteraceae      |
| 628  | *    | <i>Tanacetum vulgare</i>                                                | Asteraceae      |
| 629  | *    | <i>Taraxacum hybernum</i>                                               | Asteraceae      |
| 630  | *    | <i>Taraxacum pseudobrachyglossum</i>                                    | Asteraceae      |
| 631  | *    | <i>Taraxacum scaturiginosum</i>                                         | Asteraceae      |
| 632  | *    | <i>Taxus baccata</i>                                                    | Taxaceae        |
| 633  | *    | <i>Telephium imperati</i> ssp. <i>orientale</i>                         | Caryophyllaceae |
| 634  | *    | <i>Teucrium chamaedrys</i> ssp. <i>chamaedrys</i>                       | Lamiaceae       |
| 635  | *    | <i>Teucrium chamaedrys</i> ssp. <i>lydium</i>                           | Lamiaceae       |
| 636  | *    | <i>Teucrium divaricatum</i> ssp. <i>divaricatum</i>                     | Lamiaceae       |
| 637  | *    | <i>Teucrium polium</i> ssp. <i>polium</i>                               | Lamiaceae       |
| 638  | *    | <i>Teucrium scordium</i> ssp. <i>scordioides</i>                        | Lamiaceae       |
| 639  | *    | <i>Thalictrum flavum</i>                                                | Ranunculaceae   |
| 640  | *    | <i>Thymbra spicata</i> ssp. <i>spicata</i>                              | Lamiaceae       |
| 641  | *    | <i>Thymus longicaulis</i> ssp. <i>longicaulis</i>                       | Lamiaceae       |
| 642  | *    | <i>Thymus sipyleus</i>                                                  | Lamiaceae       |
| 643  | *    | <i>Thymus zygoides</i>                                                  | Lamiaceae       |
| 644  | *    | <i>Typha angustifolia</i>                                               | Typhaceae       |
| 645  | *    | <i>Typha latifolia</i>                                                  | Typhaceae       |
| 646  | **   | <i>Tilia cordata</i>                                                    | Malvaceae       |
| 647  | **   | <i>Tilia platyphyllos</i> ssp. <i>platyphyllos</i>                      | Malvaceae       |
| 648  | **   | <i>Tilia tomentosa</i>                                                  | Malvaceae       |
| 649  | *    | <i>Tordylium apulum</i>                                                 | Apiaceae        |
| 650  | *    | <i>Torilis arvensis</i> ssp. <i>arvensis</i>                            | Apiaceae        |
| 651  | *    | <i>Torilis arvensis</i> ssp. <i>elongata</i>                            | Apiaceae        |
| 652  | *    | <i>Torilis leptophylla</i>                                              | Apiaceae        |
| 653  | *    | <i>Tragopogon dubius</i>                                                | Asteraceae      |
| 654  | *    | <i>Tragopogon porrifolius</i> ssp. <i>longirostris</i>                  | Asteraceae      |
| 655  | *    | <i>Tribulus terrestris</i>                                              | Zygophyllaceae  |
| 656  | *    | <i>Trifolium arvense</i>                                                | Fabaceae        |
| 657  | *    | <i>Trifolium campestre</i> ssp. <i>campestre</i> var. <i>campestre</i>  | Fabaceae        |
| 658  | *    | <i>Trifolium hybridum</i> ssp. <i>anatolicum</i> var. <i>anatolicum</i> | Fabaceae        |
| 659  | *    | <i>Trifolium medium</i> var. <i>medium</i>                              | Fabaceae        |

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|------|------|----------------------------------------|------------------|
| 660  | *    | Trifolium ochroleucum                  | Fabaceae         |
| 661  | *    | Trifolium pratense var. pratense       | Fabaceae         |
| 662  | *    | Trifolium repens var. giganteum        | Fabaceae         |
| 663  | *    | Trifolium repens var. repens           | Fabaceae         |
| 664  | *    | Trifolium resupinatum var. resupinatum | Fabaceae         |
| 665  | *    | Triticum aestivum                      | Poaceae          |
| 666  | *    | Triticum durum                         | Poaceae          |
| 667  | *    | Turgenia latifolia                     | Apiaceae         |
| 668  | *    | Tussilago farfara                      | Poaceae          |
| 669  | *    | Ulex europaeus                         | Fabaceae         |
| 670  | *    | Ulmus glabra                           | Ulmaceae         |
| 671  | *    | Ulmus minor                            | Ulmaceae         |
| 672  | *    | Umbilicus rupestris                    | Ranunculaceae    |
| 673  | *    | Urtica dioica ssp.dioica               | Urticaceae       |
| 674  | *    | Urtica membranacea                     | Urticaceae       |
| 675  | *    | Urtica pilulifera                      | Urticaceae       |
| 676  | *    | Urtica urens                           | Urticaceae       |
| 677  | *    | Vaccaria hispanica                     | Caryophyllaceae  |
| 678  | *    | Vaccinium arctostaphylos               | Ericaceae        |
| 679  | *    | Verbascum georgicum                    | Scrophulariaceae |
| 680  | *    | Verbascum gnaphalodes                  | Scrophulariaceae |
| 681  | *    | Verbascum lasianthum                   | Scrophulariaceae |
| 682  | *    | Verbascum mucronatum                   | Scrophulariaceae |
| 683  | *    | Verbascum phlomoides                   | Scrophulariaceae |
| 684  | *    | Verbascum sinuatum ssp.sinuatum        | Scrophulariaceae |
| 685  | *    | Verbascum speciosum                    | Scrophulariaceae |
| 686  | *    | Verbena officinalis                    | Verbenaceae      |
| 687  | *    | Veronica anagallis-aquatica            | Plantaginaceae   |
| 688  | *    | Veronica chamaedrys                    | Plantaginaceae   |
| 689  | *    | Veronica cymbalaria                    | Plantaginaceae   |
| 690  | *    | Veronica officinalis                   | Plantaginaceae   |
| 691  | *    | Veronica persica                       | Plantaginaceae   |
| 692  | *    | Vicia ervilia                          | Fabaceae         |
| 693  | **   | Vicia faba                             | Fabaceae         |
| 694  | *    | Vicia sativa ssp. nigra var. segetalis | Fabaceae         |
| 695  | *    | Vigna unguiculata ssp. unguiculata     | Fabaceae         |
| 696  | *    | Vinca herbacea                         | Apocynaceae      |
| 697  | *    | Viola kitaibelliana                    | Violaceae        |
| 698  | *    | Viola odorata                          | Violaceae        |
| 699  | *    | Viola sieheana                         | Violaceae        |
| 700  | *    | Viscum album ssp.album                 | Santalaceae      |
| 701  | **   | Vites agnus-castus                     | Lamiaceae        |
| 702  | *    | Vitis sylvestris                       | Vitaceae         |
| 703  | **   | Vitis vinifera                         | Vitaceae         |
| 704  | *    | Xanthium spinosum                      | Asteraceae       |
| 705  | *    | Xanthium strumarium ssp. strumarium    | Asteraceae       |
| 706  | **   | Zea mays                               | Poaceae          |
| 707  | *    | Ziziphora capitata                     | Lamiaceae        |