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Biodiversity and its economic importance in the lakes region (Türkiye)

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Abstract: Biodiversity means the richness of plant and animal species and the variety richness within species. The Flora of Türkiye have a floristic richness as much as a continent ones. It is also like an open air museum. From an economic point of view, the majority of the Flora of Türkiye is composed of high-economic species such as drugs, food, spices, and paint. Plant diversity of the Lakes Region has been determined to a large extent. 2300 and 1600 vascular plant taxon grow in Isparta and Burdur, respectively. The flora of Konya, Denizli, Antalya and Afyonkarahisar were adequality not studied as far as those of Isparta and Burdur. The basic principles that biodiversity is to be gain to economy in the region are given below:

- To determine the natural or cultural plant diversity of the region, and to produce, process and market those with economic importance,
- To give weight to production of the plant groups (rose, apple, strawberry, aromatic plants etc.) which the gene center is the Lake Region,
- To focus on importance to industrial plants, especially essential oil plants,
- To reduce the sale of raw materials over time and to give weight to the manufactured goods and consumables,
- To obtain longer usage and sales duration by drying and distilling agricultural products,
- To focus on local production and small-scale management, such as family business or KOBİ; to ensure that the processing of the place where the harvest is made can be done,
- To become a brand and to obtaine geographical registration in certain products,
- To establish local botanical gardens, gene banks and research centers etc.

Approximately 120 plants of the Lakes Region are candidate to be the industrial plant. These plants list and their economical usage aims are the basic issue of our work. These important plants are as follows; poppy (*Papaver somniferum*), caper (*Capparis* spp.), centaury (*Hypericum* spp.), rose/ rosehip (*Rosa damascena, R. dumalis, R. canina, R. alba, R. semperflorens*), lavander (*Lavandula* spp.), Sütçüler oregano (*Origanum minutiflorum*), Dedegül tea/ Kafaotu (*Cyclotrichum origanifolium*), special-mint (*Calamintha nepeta*), melissa (*Melissa officinalis*), baby's-breath (*Gypsophila arrostii* var. *nebulosa*), sahleb (*Orchis, Ophyris* and *Dactylorrhiza* spp.) blackberry (*Rubus* spp.), terebinth (*Pistacia terebinthus*), carnation (*Dianthus* spp.) etc.
At the end of the report, the relationship between flora, vegetation, climate and culture of it was emphasized. A list of the important plants produced for industrial purposes are given in different areas of the region; suggestions for the development of agriculture have been made. It is seen that the floristic structure is very important especially in medicinal and aromatic plants in local agriculture. It was understood that the elements of wild flora were a sign of the well-developed breed and the families that had to be produced in the local agriculture. It was explained that the success of the strawberry creations in Şarkikaraağaç city is the success from Kızıldağ flora and the success in the production of sugar beans is one (Fabaceae/Leguminosae) of the first 3 families of natural flora pulses. The success in the production of oil rose is coming from the Dedegül mountain which is the gene center of rose genus.

1. Introductıon

Since the time of creation, mankind has paid attention to the environment. Meeting the nutritional, health and shelter needs of people throughout history has been a major problem. Most of people did not look at the same plant, some men saw. The men classified the plants to benefit. Useful and harmful, medical-aromatic; toxic-healing; food, timber, furniture purposes etc. They went to produce the plants they thought were very important, so that natural and agricultural plants emerged. Among all plants, those with high economic value and high added value are called "Economic Plants".

Wild (natural) plants are cheaper than cultivated plants and are more suitable for health. They are also ecologic to grow in the most suitable environment. They are the most important source of vitamins, antioxidants, minerals and nutrients. They are the ancestors of the cultivated plants. The first group used the plants for the treatment of many diseases. At the beginning of these plants are coming Medicinal and Aromatic plants. These group plants are also used in perfumery and cosmetics as skin care products. As their usage becomes widespread, they become industrial plants and they are switched to mass production. Drugs, food, spices, dyes, fiber, forage plants, furniture and decor plants are at the head of industrial plants.

Türkiye is a rich country attracting in the world with its biological diversity. For this reason, it is likened to an open air museum. This wealth is only in plants, species, breeds etc. but also the ecosystem diversity. The fact that the plants on the list are economically important. For example, the legume family in Flora of Turkey (Davis, 1965-1985; 1988) was written as a single volume. It is a family based food and feed plants. The wheatgrass (Poaceae) is the same. The family of Ballıbabagiller (Lamiaceae) and Cereals (Apiaceae) are also ones of the families are rich in medicinal and aromatic plants. These groups are

large families in terms of number of taxa in Türkiye. Similarly, plant species developed in Türkiye, which are rich in the number of taxa, are generally economically valuable plant groups. Rosaceae, *Astragalus* (Geven in Turkish, *Onobrychis* (Korunga in Turkish), *Salvia, Sideritis* (Adaçayı in Turkish), *Trifolium* (Üçgül in Turkish), *Verbascum (*Sığırkuyruğu in Turkish), *Olea europea* (Zeytin in Turkish), *Hypericum (*Kantaron in Turkish) *Cyclotrichum origanifolium* (Kafaotu in Turkish), Papaver spp. (Gelincik in Turkish). Samples can be duplicated.

The Mediterranean region is the center of medicinal and aromatic plants. In the ornamental plants, families Gülgiller (Rosaceae), Karanfilgiller (Caryophyllaceae) and Sıracaotugiller (Scrophulariaceae) are rich plant groups of Türkiye(Davis, 1965-1985; 1988).

The gene center of wild roses is identified as Dedegül Mountain (Isparta-Konya) in the Lakes region. Afyon (*Papaver somniferum*) is an important medicinal raw material. Its agriculture is a plant that is based on very old ones in the region. Afyonkarahisar has been given a source of inspiration for the name. Cotton (*Gossypium hirsutum*) is an important fiber plant of the Turks brought from Central Asia. It has been produced for centuries in the Mediterranean region. Hemp (*Cannabis sativa*) is also an important plant produced in the region for fiber purposes. Watermelon (*Citrullus lanatus*), Cucumber (*Cucumis sativus*) are the plants brought from Central Asia (Özçelik, 2017).

In recent times, there has been an increase in the number of natural plants in each area. The researches on the traditional use of plants have also increased significantly (Duran, 1998, Özçelik, 1987, Özgökçe and Özçelik, 2005, Arıluluk, 2010, Özçelik and Pesen, 2016).

2. Materials and methods

From 1994 year to the present day, the flora of the natural areas in the Lakes Region (Özçelik and Serdaroğlu, 1998; Özçelik and Öztürk, 1999; Özçelik and Korkmaz, 2002; Özçelik et al., 2014-2015, 2016), vegetation were carried out on medicinal and aromatic plants, field weeds (Muca et al., 2011) grown in agricultural areas. Flores of the provinces (Arıtuluk, 2010, Özçelik et al., 2013-2014, 2016) were excluded. The collected plant samples were pressed according to the method, dried and adhered to their cartons. After the diagnosis (Davis, 1965-1985; 1988), they were put into GUL Herbarium in Süleyman Demirel University. Some examples were given to GAZI Herbarium. Information and literature on local flora (medical, aromatic, poisonous, food, dye, fiber plants, etc.) for economic purposes in flora (Aslan, 2015, Baydar, 2005, Kaya et al., 2003). In addition, industrial facilities operating food, medical, aromatic plants on the site were visited. The products have been examined. In this report, natural flora, field weeds are analyzed and plants which have an important place in the cultivation of the region are listed by being interpreted with ecological conditions. Information about their economic importance and specific values was given. The ones important for the area were identified. Some proposals have been made to increase economic returns in agricultural production. In local plant names with the English name was written in general. The names of plants in Latin in the text were written for the first time, shortened for again by the initial letter. Authors of plants not written. Relations between the flora of the mountains and the well-grown agricultural plants of Lakes Region were interpreted and some suggestions were made.

3. Findings and discussion

In the Lakes Region, a rich flora has emerged depending on the climate, soil and rock varieties. It is known that the region is one of the important plant differentiation centers of Türkiye. Many plants that have escaped from natural flora to agricultural areas have been spontaneously cultivated. Others are grown in the region by bringing them from natural flora or other areas. Microclimate, rocks, soils, flora, vegetation and human endeavors have all been influential in the success of agriculture in the region. From the surrounding volcanic rocks, vast mineralized loamy soils have formed. The most important of the volcanic rocks is pumice and boron. It is known that this material is effective in fertile soil formation. There are various minerals in the structure of the rocks in the region. The mineral amount and varieties that the plant needs is in these rocks. Well-developed economic plant groups in the region and their relationship with flora are described below:

3.1. Food plants

Vegetable and fruit farmings are common in the region. There are a large number of naturally occurring taxa belonging to the Solanaceae family. Poaceae and Fabaceae also share the top three natural floral research areas. Plants that are cultivated are provided with a natural flora, both taxon-based and diversity-based.

- Kebere/ Kapari, Capper (*Capparis* spp.): Although they are perennial plants and have been in Türkiye for many years. Their importances have been understood in recent years (Özçelik and Koca, 2011). Beside being evaluated as vegetable, it is used abundantly in medicine, cosmetics, paint and feed industry in many world countries. In Türkiye and in the region are two species of the capers as *Capparis spinosa* and *C. ovata*. Buds, berry, and root bark of them are known as diuretics, constipation and forceps. Used part economically of them is mainly buds. The buds are generally used for food. Flower buds collected from nature in Türkiye, between 1995 and 2000, it started to take an important place in exports with an average production amount of 5000 tons and a value of 15 million dollars. The lamb is considered to be a suitable plant in economic evaluation of areas considered as non-agriculture (Özçelik and Koca, 2011). In the food industry, *C. ovata* is the most preferred.
- Salep, Sahlep (*Orchis, Ophyris, Cephalentheera* and *Dactylorhiza* spp.): An important part of the diversity of sahlep plants

is the Lakes Region. But what kinds of genres exist in the area? The population sizes of species are also not specific. The locusts are used for food and medical purposes. It is common sense that it gives a feeling of satiety and is useful against gynecological diseases. In the Bucak district, sahlep oysters are collected for commercial purposes. The most important place in the production of sahlep in Türkiye is Bucak city. Bucak sahleb is the most famous. Bucak district is also a center where other medical and aromatic plants are collected and traded. Approximately 120 million sahlep lids per year are removed in Türkiye.

- Zeytin, Olive (*Olea europea* subsp. *sylvestris*): The motherland is considered Eastern Mediterranean, ie Türkiye. Wild olive grows wild in the Mediterranean region up to 800 m. In Çandır (Sütçüler) and Senir (Keçiborlu) it naturally grown on the sides. Oil is obtained from both fruits and seeds. The amount of fat in the fruit is about 12%. Oil droplets are collected in mesocarp cells. It is possible to produce oil from both fruit and kernel (seed). Olive is a valuable food ingredient at the same time. The most important of these is the raw material of the medical material. Bioactive substances have recently been obtained from olive black water (waste). *Oleuropein* is one of these. Leaves have a higher bioactive content.
- Yağgülü, Rose (*Rosa damascena*): Smile in Türkiye is done only in the Lakes region. Approximately 10,000 families have income from this sector. About 12,000 tons of rose flower are processed annually. After this process, about 2000 kg of rose oil is produced. The economic value of this oil is about 50,000 TL / kg. It is nearly exported to France. In the food sector, it has an important place in the production of confectionery. Ice cream, Turkish delight, vinegar, syrup etc. is used as a raw material for roses or as a food additive in about 20 food products. It is also used for medical and cosmetic purposes. It is used in the cosmetics sector in approximately 120 jugs.
- Yerelması (*Helianthus tuberosus*): It is a food that is widely consumed in the region and is eaten raw, especially for diabetes.
- Böğürtlen, Blackberry (*Rubus fruticosus*): It is produced for household needs in home gardens, specially for syrup and fresh food. Thorny, uneven; fruit are spherical and long type. Fruit, roots and leaves are used against diabetes. *R. ideus* (Raspberry, Ahududu) is also used and produced for the same purposes. A large number of *Rubus* species naturally grow on the mountain of Dedegül. It is a species that is produced in the region for both landscape and food purposes. There are a large variety of species grown on roadside refuges, in home gardens and in parks. It's a protection against diabetes. Fresh fruits are eaten or syrup made.
- From fruit trees; Kızılcık/ Ergen, Cornelian (*Cornus mas*), Ayva, Quince (*Cydonia oblonga*), Ceviz, Walnut (*Juglans regia*), Kiraz, Cherry (*Cerasus avium*), Vişne, Cherry (*Cerasus vulgaris*), Elma, Apple (*Malus sylvestris*), İncir, Figs (*Ficus carica*), Karadut, Black mulberry (*Morus nigra*), Alıç, Hawthorn (*Crataegus* spp.), Kuşburnu, Rosehip (*Rosa* spp.), Asma/ Üzüm, Grape (*Vitis vinifera*), Hünnap, Jujube (*Ziziphus jujuba*), Ahlat, Wild pear (*Pyrus* spp.), Muşmuşa/ Beşbıyık, Medlar (*Mespilus germanica*) etc. are widely produced in the region.
- There are some families in the region that are important for bee farming and honey production. Important families and Turkish names are mentioned below: Ballibabagiller (Lamiaceae), Maydanozgiller (Apiaceae/ Umbelliferae), Gülgiller (Rosaceae), Baklagiller (Fabaceae), Papatyagiller (Asteraceae), Hodangiller (Boraginaceae), Çamgiller (Pinaceae) are some of these.
- In the past years, these aims have been expanded while mushroom picking has been medical and nutritional. However, the concern that people have about mushroom poisoning limits the amount of consumption. In the country, almost 40 edible mushrooms are collected for cooking purposes and 25 of them are traded or exported abroad. Lamb breast: *Morchella esculanta* var. *rotunda*, *Morchella conica* var. *deliciosa,* Domalan (*Rhizopogon luteolus, Russula delica* etc. The mushrooms that have a high economic importance and are eaten in the Lake Region:

White mushrooms: Dolaman (*Rhizopogon luteolus*),

İstiridye mantarı (*Pleurotus ostreatus*) is found both locally and culturally. Burdur producing İstiridye mantarı can sell fresh İstiridye mantarı edible mushrooms from 8-15 TL / Kğ in the neighborhood markets. On the marine side, for medicinal purposes, on the side of Korkuteli (Antalya), the production of mushrooms for culinary purposes has recorded important steps. There are only restaurants in Denizli that produce food on mushrooms.

Yellow mushrooms: Çıntar (*Lactarius deliciosus*), in some places also called Kanlıca Mantarı. These mushrooms are cooked and eaten.

Black mushrooms: Truffle mushroom (*Tuber* spp.) is also an important herbal value. Some countries produce this mushrooming and gain serious economic benefits. 2000 Tl / kğ on the domestic market. It can be sold in Europe up to 3000 Euros. The people of the Lake Region can not make use of this mantel sufficiently. Most mushroom trade is done in Burdur province.

Almost everywhere in Türkiye, the mushrooms (*Morchella* spp.) are collected from nature and consumed or sold every year. In 2014, the Kuzugöbeği mushroom, which is 60-80 TL / kg, is an important source of income for local people. Most places traders come and buy fresh from the villagers. In the same way, Çıntar mushroom is sold in abundance in Burdur and Muğla circles especially on roadsides. It is known to the people of the region that this mushroom scorpion, bee etc. against putting poisonous animals, it is beneficial. In recent years, mushroom production has increased in the region. *Agaricus bisporus* (edible mushroom, cultured mushroom) was started to produce oyster mushrooms. Experiments are also carried out for the production of lamb breasts and mushroom.

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Important functional food plants that can be produced for industrial purposes: Geyik elması (*Eriolobus trilobatus*), Alıç /Yemişen (*Crataegus* spp.), Kuşburnu (*Rosa* spp.), Hünnap (*Ziziphus jujuba*), Beşbıyık (*Mespilus germanica*), Frenküzümü (*Ribes rubrum*), Kestane (*Castanea sativa),* Kiraz (*Prunus avium),* Elma (*Malus sylvestris*), Böğürtlen (*Rubus fruticosus* İdris/ Mahlep (*Cerasus mahalep*), Yerelması (*Helianthus tuberosus,* Gül (*Rosa damascena*), Kebere (*Capparis* spp.), Kanola (*Brassica napus),* Salep (*Orchis, Ophrys, Dactylorrhiza* spp.).

Oil plants: Zeytin/ Olive (*Olea europea*), Menengiç/ Çöğre, Gum Tree (*Pistacia terebinthus*), Susam, Sesame (*Sesamum indicum*), Ayçiçeği, Sunflower (*Helianthus annuus*), Pamuk, Cotton / Pamb (*Gossypium hirsutum*) (Özbek et al., 2004).

Food coloring: Aspir (*Carthamus tinctorius*), Şekerciboyası (*Phytolacca americana*), Gül, Rose (*Rosa damascena*), Siyah üzüm/Asma (*Vitis vinifera*), Sumak/ Mavru, Sumach (*Rhus coriaria*), Kırmızı pancar, Red beet (*Beta vulgaris* var. *cruenta*), Domates, Tomato (*Lycopersicon esculentum*), (Özçelik, 1987).

Functional aromatic plants important from an industrial point of view: Laden/ Pamukluk otu/ Karağan (*Cistus creticus*, *C. salviifolius*), Püren/ Funda (*Erica arborea*), Adaçayı spp. (*Salvia officinalis, S. tomentosa, S. argentea, S. aethiopis*), Kekik (*Tymbra spicata* and *Thymus* spp., *Satureja* spp.), Mercanköşk/ Kekik (*Origanum minutiflorum, O. majorana, O. sipyleum, O. onites*), Hatmi *(Althea officinalis* and *Alcea* spp.), Kafaotu/ Kafasüpürgesi/ Karabaşotu (*Cyclotrichum origanifolium),* Çörek otu/ Karacotlam (*Nigella sativa*), Hasnane (*Calamintha nepeta*), Anason *(Pimpinella anisum*), Kişniş (*Coriandrum sativum)*, Anason (*Pimpinella anisum)*, Rezene (*Foeniculum vulgare)*, Dereotu (*Anethum graveolens*), Kimyon (*Carum carvi)*, Susam *(Sesamum indicum),* Nane *(Mentha* spp.), Beyşehir Çöveni (*Gypsohila arrosti* var. *nebulosa*) *(*Marotti ve Piccaglia, 1992; Muca vd., 2011; Telci, ve Sahbaz, 2005; Viljoen vd., 2006; Karadoğan vd., 2000-2003; 2016; Korkmaz ve Özçelik, 2011).

3.2. Feed crops

Animal feeds are plants or special blends that hold an important place in the feeding. For example, Çakşır, Çaşır/ *Ferula, Prangos* (Apiaceae) and some Fabaceae species are fresh, although they are poisonous, they are harvested at the end of the growing season and fed to the animals by being dried and mixed with other foods. So, in animals, sickness is reduced, reproductive speed is increased etc. So some essential oil plants have aphrodisiac effect. Essential oils of some medicinal and aromatic plants, such as Biberiye, Kuşdili, Rosemary (*Rosmarinus officinalis*), Kekik, Thyme (*Thymus* and *Origanum* spp., *Satureja* spp., *Satureja* spp.) and Lavanta, lavender (*Lavandula* spp.) which are confined to fish feeds, open the fish's appetite, as it grows faster. Breeding can be increased in all animals by eating lavender oil and rose pudding.

Animal breeding can not be done without feed plants. Natural meadows and horses are the areas where quality meals are abundant and cheapest produced. In many countries where conscious livestock is made, pastures form the backbone of fattening. Feeding rate is considered an important measure of your development rate. Because if livestock are not produced, livestock must be made with fraudulent food. There are important grazing areas in the Lakes Region. These areas are mostly located around Şarkikaraağaç, Yalvaç, Eğirdir, Aksu, Senirkent (Isparta), Beysehir (Konya), Düger, Bucak, Ağlasun, Yeşilova, Karamanlı (Burdur). In the pastures, there are regular grazing plans, fair distribution of herbage yield to animal producers and breeding programs of degraded beverages.

Arum italicum (Danaayağı), *Solanum nigrum* (İt üzümü), *Ranunculus* spp. (Düğünçiçeği) are very poisonous when fresh (flowering). But if they are dried after flowering they does not show the same effect. *Vicia freyniana* (an endemic species to the region), *Sorghum halepense* (Kanyaş, Kaynaşık, Gelemge ayrığı), *Trifolium subterraneum* and so on are also effective when they are fresh in animals, while they are little effective or ineffective when dry. From these plants, *Vicia freyniana* is an endemic species of Lakes Region and is a fast growing species. It is an important plant that can be cultivated as a feed plant.

Table 1. Important feed crops of the Lakes Region (*: culture form).

Species	Turkish name	Used part	Economic priority
Vicia spp.	Fiğ	All over ground axles	Near Akseki and Isparta, the local people give the name "Fink". They are plants produced for feed purposes.
Onobrychis spp.	Korunga	All over ground axles	Some species are produced
Trifolium spp.	Üçgül	All over ground axles	It is also known as "scarlet". It grows naturally. It is fed to the animals.
Trigonella spp.	Çemenotu	All over ground axles	It grows naturally. It is fed to the animals.
Medicago spp.	Yonca	All over ground axles	It grows naturally. It is fed to the animals.
Secale montanum	Çavdar	All over ground axles	Naturally grown and cultivated. It is fed to the animals.
*Hordeum vulgare**	Arpa	All over ground axles	It is grown for food purposes. The other part is straw and used as bait after the harvest has been completed.
*Triticum vulgare**	Buğday	All over ground axles	It is grown for food purposes. After the barn has been harvested the other part is shredded, takes the name of straw and used.
Avena fatua	Yulaf	All over ground axles	It is grown for food purposes. The other part is straw and used as bait after the harvest has been completed.
*Beta vulgaris**	Şeker Pancarı	Tuber roots	After the sugar is obtained, the waste (bagasse) is packaged into commercial feed. It's the cheapest bait.
*Zea mays**	Silajlık Mısır	All over ground axles	Agriculture is done. It is grown for herb value. Then it is chopped into silage. Widely used.
Brassica rapa var. *rapa*	Yem şalgamı	Whole plant	Agriculture is done.

Feed plant: Kocafiğ (*Vicia freyniana* (Endemic to the region), Fiğ (*Vicia* spp.), Korunga (*Onobrychis* spp.), Mısır/ Kacadarı (*Zea mays*) bir türü), Nohut (*Cicer arietinum*), Arpa (*Hordeum vulgare*), Buğday (*Triticum aestivum*).

3.3. Medicinal and aromatic plants of the region

Taurus nomadic herders and shepherds often used tar obtained from the dwarf Pine (*Pinus* spp.), Juniper (*Juniperus* spp.), Fir (*Abies cilicica*) and Cedar (*Cedrus libani*) trees when treating animals, are known. They use this tar against the Crimean Congo Hemorrhagic Disease and the "Tetanus Disease".

The tar called "Black Physician" which we frequently encounter in animal treatment is used as "Yakı" (Yarar, 2014) in the recovery of cold sores and injuries in low back pain. Recently Katran Soap has been produced and sought after with modern techniques.

Aromatherapine is a spice plant based on. Important medicinal and aromatic plants in the field are:

- Ceviz/ Walnut (*Juglans regia*): They expressed the definite cures by using "Yakı" making and applying by blowing with water.
- Çam/ Pine (*Pinus* spp.): Chewing chewing gum protects your dental health.
- Çıtırık/ Çedimek/ Menengiç (*Pistacia terebinthus*): It says that the defeat of the fruit protects the teeth. A food is prepared from the fruit with the name "Menengiç Kahvesi/ Menengiç Coffee Shop". The oil is very valuable in terms of medicine. It grows abundantly in the region naturally. Kadıntuzluğu/ Sarıçalı/ Karamuk (*Berberis vulgaris*): In the autumn, its roots are removed, cleaned and boiled. Gargling is done after the cold. It is expressed that toothache and wound in the mouth are good. Ebegümeci (*Malva* spp.): If gas is produced as a result of cold and chilling cold. It is mixed with the barley flour and it is used as "yakı". The leaves and flowers are used in effective substance. It is used against coughing and as an emollient.
- Hatmi/ Gülhatmi/ Gülfatma (*Althea officinalis):* Homeland is Eurasia. Especially the leaves are used. Effective substance is a trick. It is used against throat infections and inflammations. The tea of the flowers is drunk against infectious diseases. Drinking liquid extract obtained with water vapor is useful for lung diseases. Chest softener. *Alcea* genders are also used for the same purpose. The flowers are collected and shaded and dried. There are many kinds in the region and it naturally grows in abundance.
- Koyunotu/ Oğlanotu (*Teucrium polium*): It is boiled in a cold, waiting for 5-10 minutes, then 2 sips are drunk. It does not drink too much because it is painful. It grows abundantly in the region naturally.
- Suteresi/ Gölotu (*Nasturtium officinale*): Salad cancer patients are sick if the disease is fed. Recently, this plant has been largely forgotten. Even the number of those who now know the consumption side is very small. It seems that this drug was made against cancer in USA. Again in the United States, the algae of water algae (*Spirogyra* etc.) are used against goitre disease. It is known that all plants living in the water are rich in iodine, diseases such as tonsillitis and goitre are also caused by iodine deficiency in the body, and a germicidal mixture is made with the name of tentide iodine by dissolving in iodine alcohol.
- Papatya, Daisy *(Matricaria chamomilla):* Homeland Mediterranean Region. It is the flower of the plant used as medicine. *Tripleurospermum* and *Anthemis* species are also used for the same purpose. The species diversity in the region is excessive. Some are smelly.
- Acıyavşan/ Pelinotu (*Artemisia absinthium*): Homeland is Eurasia. Fresh branches and flowers of the plant are used. In the chemical composition absinthine is glucose. In addition, it has tannin, etheric oil etc. It is used against stomach discomfort (car retention, digestive disorders, etc.) and muscle weakness. *A. campestris* is known in the region as "Püren". Its branches are spread over fig, apricot etc. the fruits of the plants are dried. The name of a local area around Gölcük Lake is Pürenovası. Take the name from this plant.
- Civan perçemi/ Ayvedana (*Achillea millefolium*): Homeland is Europe. Branch leaves and flowers are used. A glycoside named Achillein is on its way. It is used against indigestion and cancer. Plant sap is a powerful antiseptic. The water is used against the degradation of food. *Achillea* and *Tanacetum* species are very common in the region. It grows naturally.
- Meryemana dikeni/ Virgin Mary (*Silbyum marianum*): Can also be used for liver. In the morning they are boiled and drunk. It is recommended to drink local tea against many internal diseases. These plants are exported to Türkiye.
- Aspir/ Safflower (*Carthamus tinctorius*) plant is an old food additive plant that was started to be cultivated in Anatolia 3000 years ago (Özçelik and Koca, 2011). In 2004 year, 582 thousand tons of aspirate were produced in 720 thousand hectares of field in the world. The cartharmin substance produced from aspir flowers is important as natural dye raw material and also used as a spice. Several species of *Carthamus* are naturally grown in the region. Sage/ Medical Sage (*Salvia officinalis*): Homeland is the Mediterranean region. It is produced for economic purposes in the region. Aromatic plants are usually sold to transmissions. Especially Sütçüler is exported to Europe.
- Oğulotu/ Melissa (*Melissa officinalis*): Homeland The Mediterranean region is mostly grown in Central and Southern Europe. It is the leaves of the plant used as medicine. Aphrodisiac is effective. The wild forms are grown in abundant amounts on the sides of the Sütçüler, Aksu, Yenişarbademli cities.
- Kekik/ Zahter, Thyme (*Thymus serphyllum*): Homeland is Eurasia. The plant that is used as medicine is branches, leaves and flowers. The active substance is thymol. It is used against coughing and stomach discomfort. In the region, it is cultivated. One source of healing is thyme (*Thymus, Origanum, Satureja* and *Thymbra* spp.) and thyme oil. They are frequently used in both colds and tonsillitis. Oregano volatile oil is widely used both externally and externally in all infectious diseases in Taurus nomads.

- In Türkiye, such as *Satureja, Thymus, Thymbra, Coridothymus* and *Origanum* are also called thyme, and there are about 270 different species of plants used as thyme throughout the country. 70 of these species belong to the genus *Thymus,* 1 belong to the genus *Coridothymus* and some 10 belong to the genus *Satureja.* At least ¼ of these are grown or raised in the Lakes Region.
- Mercanköşk/ Kekik, Marjoram, Merzengus, Thyme *(Origanum* spp.): The motherland is the Mediterranean region. There are about 20 species in the country. *O. majorana* in Akseki (Antalya) is known as "İncirkekiği". *O. minutiflorum* is known by the name of "Aşkekiği, Çorbakekiği, Sütçüler kekiği, Totakekiği". *O. onites*; It is known as "Eşekkekiği, Bilyalıkekik, İzmir kekiği". *Origanum vulgare* subsp. *viride* is known as "İstanbul kekiği". Leaves and fresh bodied foods are used as spices. For this reason, *O. majorana* is called "Figurine" in the vicinity of Akseki. *Origanum* species have been used as medicines and spices since ancient times. Exported products of Türkiye. Our best selling products. While dairy cows are the most preferred, there is no problem in the normal conditions of sale of all thyme to Europe. In recent times, cultural studies have accelerated. The most produced İzmir Kekiği, Donkey tyme. The quality of the thyme produced is lower than the wild ones. Approximately 700 kilograms of thyme (rough weed) can be produced from a declination. It can be trimmed 3 times a year. Commercial value is 5 Tl / kg as roughage.

Origanum species usually carry carvacrol and thymol as essential ingredients in essential oils. Essential oils obtained from *Origanum* species have some therapeutic effects, mainly coletogenic and antimicrobial effect. They can also be used in the pharmaceutical, cosmetic, perfume, liquor and soap industries.

- Kafaotu, Kafasüpürgesi, Karabaşotu, Dedegülçayı (*Cyclotrichum origanifolium*): It starts from Lake Region and spreads to Amanos Mountains (Adana, Hatay). While the top part is used as a spice, the oil is used for medical purposes (brain blood vessels, blood sugar lowering, blood pressure lowering etc.). It is a plant that is sold in abundance in Isparta. The fat content is 3-4%. There are 5 species of *Cyclotrichum* genus in Türkiye. *C. niveum* species grow abundantly in the steppe on the Malatya side and the oil content is 6% (very high) but the oil composition is not as good as *C. origanifolium*. The head swab is called Head Beauties because it opens the brain vessels and increases the blood flow to help solve the problems in the brain. It is used more extensively for *Lavandula stoechas.* Cultivation ways must be sought. Soap can also be used in the industry.
- Nane, Yarpuz/ Mint *(Mentha* spp.): It is etheric / volatile oil which is called "menthol" which gives noxious taste and pleasant smell. These oils are collected in secretory follicles and secretory glands on the epidermis covering the fresh body and leaves. Menthol is widely used in the pharmaceutical industry. It is exported products of Türkiye. Yarpuz, Mint (*Mentha piperita*): Homeland is Western Europe. The part used as medicine is the leaves of the plant. The active substance is the menthol. It is used in mouth water production and soothing. There are about 10 kinds in Isparta. *M. pulegium* carries 42-49 % mentol. The region is cultivated. Approximately 10 wild formulas grow in abundance on the side of Sütçüler, Aksu, Yenişarbademli. Especially *M. spicata* and *M. longifolia* are very common. They are used in oil production. For *Calamintha nepeta,* the villagers of Aksu (Isparta) give the name "Hasnane" and volatile oil is removed. It is a precious oil.
- Lavanta, Lavender (*Lavandula stoechas, L. angustifolia*): They have a separate prescription for the Lake District. They have very good odor. The flowers are collected while they are about to open and distilled to obtain volatile oil. The flowers are a force transmitter and diuretic. Its tea is drink against rheumatism. Used externally as soothing. It is known that active ingredients in Lavantia suppress hepatitis B and C virus, which cause liver cancer. It is an important plant group used in the perfumery industry. The flowers protect from drying clothes from insects. As an insect repellent, it can be used in place of naphthalene (asifinic), which is prohibited for its use as carcinogenic in recent years. The distillation of lavender herb with water vapor also changes the economic value of the essential oil, oily water or oil water produced. Recently Kuyucak village (Keçiborlu) is going to introduce lavender fields and products with tourism. *Lavandula angustifolia* has a separate prescription for the Lake District. Very good odor. The flowers are collected while they are about to open and distilled to obtain volatile oil. The flowers are a force transmitter, a diuretic. Drink tea against rheumatism. Used externally as soothing.

There are 2 species (*Lavandula stoechas, L. angustifolia*), 1 hybrid (*L. x hybrida*) called lavandin and 20 cultivars (*Super A, Grasso, Grassotina, English, Akme, Munstead, Duch, Abrial,* etc.), members of the lavender (*Lavandula*) genus are raised in the Mediterranean region only under the influence of Burdur Lake in the vicinity of Keçiborlu-Dinar, especially between Isparta-Burdur-Afyonkarahisar. The efforts to create a collection garden of all lavender varieties of Türkiye in MAREM (Isparta) have been going on for years.

- Defne, Laurel (*Laurus nobilis*): The motherland is the Mediterranean region. In countries with pre-sea coasts, abundance is found in and around the creek beds. By local people in Taurus mountains, it is known as Tehnel or Tehni. The smell is hardly understood from the outside. Because etheric oil is an in-plant secretion. When the tissue is disintegrated, the odor will emerge. As a spice, in food it is very popular. It is an etheric oil and bitter substance that gives smell and taste. Leaves are especially preferred in fish dishes. The oil is very economically valuable. Especially, it is preferred in making soap for medical purposes.
- Anason, Anise (*Pimpinella anisum*): Motherland is Asia. It has an etheric oil called anethol. This is also the substance that gives a burning flavor and anointense to the anise. Anise is flavored with some cakes and alcoholic beverages. It is also used in throat inflammations and stomach pain.

Isparta's important fragrant plant richness and vernacular names: There are aromatic plant varieties which can be cultivated around 190 in Isparta province. The areas in which these crops are predominantly cultivated are Aksu, Sütçüler and Yenişarbademli districts which is rich in flora. From wild herbaceous plants; Kafaotu/ Karabaşotu/ Kafasüpürgesi/ Dedegül çiçeği (*Cyclotrichum origanifolium*), Sahlep (*Orchis, Ophrys, Dactylorrhiza* spp.), Aşkekiği/ Yaylakekiği/ Bilyalı Kekik/ Eşekkekiği (*Origanum minutiflorum*), Yarpuz/ Nane (*Mentha* spp.), Evelik/ Kuzukulağı/ Labada (*Rumex* spp.), Madımak, Çobandeğneği (*Polygonum* spp.), Çöven/ Çevgen (*Gypsophia* spp.), Karanfil (*Dianthus* spp.), Oğlanotu (*Teucrium polium*), Bodurmahmut (*Teucrium chamaedrys),* Karakekik (*Tymbra spicata*), Adaçayı, Yaylaçayı, Dağçayı, Dallı, (*Sideritis* spp.), Şalba, Adaçayı (*Salvia officinalis, S. tomentosa*), Papatya (*Anthemis, Matricaria* and *Tripleurospermum* spp.),), Herdemtaze/ Altınotu/ Marsuvanotu (*Helichryssum* spp.), Ebegümeci (*Malva sylvestris, M. neglecta*), Yavşan/ Pelin (*Artemisia absinthium*),) Nevruzotu/ Arslanağzı (*Linaria* spp.), Nergiz (*Stenbergia lutea, Narcissus tazetta*), Çiğdem (*Crocus* spp.), Zambak (*Lilium, Iris* spp.), Meryemana Dikeni/ Devedikeni (*Silybum marianum*), Dişotu/ Hıltan (*Ammi visnaga*), Öksürükotu (*Tussilago farfara*), Kardelen/ Nergiz (*Galanthus* spp.), Kantaron/ Binbirdelikotu (*Hypericum* spp.), Gülhatmi/ Gülfatma (*Alcea* and *Althea* spp.), Ballıbaba (*Lamium* spp.), Misk Adaçayı (*Salvia sclerae*), Gıvışkanotu (*Silene vulgaris*), Güneyik (*, Chondrilla juncea* and *Taraxacum* spp.), Karahindiba (*Cichorium intybus)*, Sütlük (*Scariola* and *Sonchus* spp.), Isırgan (*Urtica dioica*), Şakayık (*Paeonia mascula*), Kediotu (*Valeriana officinalis, V. dioscoridis*), Yoğurtotu (*Galium* spp.), Dana ayağı (*Arum* spp.), Melekotu (*Angelica sylvestris*), yabani soğanlar (*Allium* spp.), Sümbül (*Muscari bourgaei, M. muscarimi*), Ayrıkotu (*Agropyron repens*), Çakşırotu (*Prangos* and *Ferula* spp.), Yaraotu (*Glaucosciadium cordifolium*), Böğürtlen (*Rubus* spp.), Sakızotu (*Scorzonera* and *tragopogon* spp.), Şevketibostan (*Cnicus benedictus*), Çördük/ Tarhanaotu (*Echinophora* spp.) etc.

From forest trees: Günlük/ Sığla (*Liquidambar orientalis*), Katran/ Sedir (*Cedrus libani*), Ardıç (*Juniperus excelsa, J. foetidissima, J. oxycedrus*), Çam (*Pinus brutia, P. nigra*) , İledin/ Göknar (Abies cilicica), Palamut Meşesi (*Quercus ithaburensis* subsp. *macrolepis*), Söğüt (*Salix* spp.) etc.

From the shrub group; Kebere/ Kapari (*Capparis spinosa, C. ovata*), Sumak/ Mavru (*Rhus coriaria*), Papazkülahı (*Eunymus laifolius*), Gelinyemişi, Erguvan (*Cercis siliquastrum),* Ihlamur (*Tilia platypllos*), Karaçalı/ Çaltı (*Paliurus spina-christi*), Defne (*Laurus nobilis*), Sivrikekik, Et kekiği (*Satureja* spp.), Karağan/ Laden (*Cistus* spp.), Mersin/ Murt (*Myrtus communis*), Kuşburnu/ İtburnu (*Rosa dumalis, R. canina, R. hemisphaerica, R. micranrantha* etc.), Püren, Funda (Erica spp.), Tesbih Çalısı/ Ayıfındığı (*Styrax officinalis*), Üvez/ Tekeelması (*Sorbus* spp.), Geyikelması (*Eriolobus trilobatus*), Hayıt (*Vitex agnus- castus*) etc.

From herbal culture plants; Carnation, Clove, Haşgeş (Poppy / Afyon), Garlic, Onion, Aspir, Cumin, Radish, Turnip, Dill, Tere, Rocket, Fennel, Broccoli, Cabbage, Mint, Thorn, Corn, Pumpkin, Hiyar, Melon. A science called "ethnobotanic" refers to how plants are used throughout human history, especially for therapeutic purposes. The use of plants for treatment is a common occurrence in non-industrial countries. According to the World Health Organization (WHO) estimate; 80% of people in some Asian and African countries are still treating with this type of plant.

Spice plants that benefit from the seed: Hardal, Mustard (*Sinapis* spp.): The motherland is the Mediterranean region. Mustard seeds have an etheric oil and a glycoside called sinigrin in this oil. There are two types: *S. alba* (Ak hardal in Turkish), *Brassica nigra* (Kara hardal in Turkish). Their seeds are not bitter and can be used in meals.

Some plants used as spices in Lakes Region: These plants are important for honey bees. It is aimed at increasing the yield of honey or against the disease of bee. The pines that eat the fresh body and leaves of the pine trees are called "basara in Turkish". The pine honey produced by eating these babies is also called " başara balı in Turkish ". Here are some local names of some bee plants: Basara çamı/ Kızılçam: *Pinus brutia*, Kekik: *Thymus* spp., *Satureja* spp., *Origanum* spp., Gül: *Rosa damascena* and *R. semperflorens,* Geven: *Astragalus* spp., Lavanta: *Lavandula stoechas, L. angustifolia* and *L. x hybrida*.

Important herbaceous aromatic plants cultivated in the Region: Dereotu, Dill/ Anise: *Anethum graveolens*, Kişniş, Coriander: *Coriandrum sativum*, Anason, Anise: *Pimpinella anisum*, Rezene, Fennel: *Foeniculum vulgare*, Kimyon, Cummin: *Carum carvi*, Turp, Radish: *Daucus carota*, Çörekotu: *Nigella sativa*, Canola: *Brassica napus,* Haşgeş/ Haşhaş/ Afyon/ Poppy *(Papaver somniferum),* Pamuk, Cotton *(Gossypium hirsutum),* Susam/ Sesame *(Sesamum indicum)…*

From trees: Kestane, Chestnut(*Castanea sativa),* Kiraz, Cherry (*Prunus avium),* Elma/ Apple (*Malus sylvestris),* Badem/ Padem/ Payam, Almond *(Amygdalus communis),* Ceviz, Walnut *(Juglans regia),* Ayva, Quince *(Cydonia oblonga),* Beşbıyık/ Muşmula, Medlar *(Mespilus germanica).*

- Ihlamur, Linden *(Tilia* spp.): The motherland is unknown. It is the flowers and bracts of the plant used as medicine. Effective items are Hilamar and etheric oil. The hymen has a gelatinous structure. It has diaphoretic and diuretic potency. Along the Aksu stream, there are natural linden communities. In recent years, it is a tree widely used in urban landscape. The economic value of flowers and wood is high. The economic value of flowers is around 250 Tl / Kg.
- Mürver, Elderberry *(Sambucus nigra*): Homeland is Asia. The part used as medicine is its fruits and flowers. The effective ingredients are amygdalin, a chelate, an etheric oil, a tannin and a glycoside. The plant has diuretic and sweating effects. In Yeni Mahalle, Gelincik, Yakaören villages and old house ruins of Isparta are grown in abundance. *S. ebulus* is also very common in the region. Its fruits are of medical value.
- Kediotu, Valerian (*Valeriana dioscoridis*): Homeland is Eurasia. Rhizomes and leaves of the plant are used. Its active ingredient is valerian acid and various etheric oils. In case of nervous weakness, it is used against hysteria and heart attack. It has aphrodisiac effective and sedating. The plant are used for eye diseases. *V. officinalis* is also used for the same purposes. However, it does not grow naturally in the region and it is provided from the transmissions.

- Ardıç, Juniper (*Juniperus foetidissima*): It is common in the Northern Hemisphere. Meat cones of it are used. The active substance is pinicrin glycosides and etheric oils. It's good for throat inflammation and indigestion. *J. communis, J. excelsa, J. oxycedrus* are used for the same purposes. *J. excelsa* and *J. foetidissima* logs are laid on the bottom of water wells to disinfect water. A bucket (water container) is made from the logs. Its woods are valuable. Primitive vegetation of the region is juniper forests. Lately, the soap made for medical purpose has been made widespread after the oil has been taken.

- Meyankökü, Liquorice *(Glycyrrhiza glabra*): Homeland is Asia. The active ingredient is glycerin, asparagine, resin, sugar and glycyrrhizin. It is usually used in the production of cough medicines. The raw materials are exported. This plant grows on the side of Konya. It is raw material of collagen. The fibers are kept cold in water for 2 hours than drink.
- Zambak, Süsen, Lily (*Iris germanica*): Domestic culture plants grown for ornamental purposes in the entire country. In recent years, in Isparta is an industrial plant. Lily oil is a very rare, valuable cosmetic raw material for this reason. The oil is important for smell and health. The fragrance called pilgrimage is the lily essence. In perfumeri sector, it is preferred for pleasant odor. Volatile oil is obtained like other volatile oils. That is, its oil is obtained by water vapor distillation of crushed rhizomes. The volatile oil can be in various tones of blue color. This depends on the type of distillation used and the method of distillation. The Robertet company (Keçiborlu) is the only company in the production and sale of this product. She sells her products to France.

Important industrial plant species and Turkish names are mentioned below:

Üçgül (*Trifolium* spp.), Puren/ Funda (*Erica arborea*), Laden/ Karağan (*Cistus creticus, C. salviifolius*), Karaçalı/ Çaltı (*Paliurus spina-christi),* Kekik/ Mercanköşk *(Origanum onites, O. vulgare* subsp. *hirsutum),* Şalba/ Adaçayı *(Salvia tomentosa, S. argentea, S. aethiopis),* Çam (*Pinus brutia, P. nigra*), Ihlamur (*Tilia argentea*), Ayçiçeği (*Helianthus annuus*), Kestane (*Castanea sativa*) and Kocayemiş (*Arbutus unedo*, *A. andrachne*) are very important plant species in beekeeping (Sales and Division, 2015).

3.4. Significant Toxic Medical Plants in the Region

The richest family on this subject is Solanaceae.

- Banotu (*Hyoscymus niger*): Homeland is Eurasia. Leaves and seeds are used. Hypocrite, a poisonous alkolide, is an active ingredient. Used as a drug. It is a common species throughout the country.
- Tatula/ Boru çiçeği/ Tatula, Pipe flower (*Datura stramonium*): It is a common species throughout the country. Its leaves and seeds are used as medicines. Effective materials of it are Atropine and Hyocyamin. It is used for asthma and cough. Atropine and Hyocyamine are suitable for the production of alkaloids. *D. inoxia* naturally grows on the side of Keçiborlu.
- Yüksük otu, Thorny grass *(Digitalis purpurea*): Homeland Central Europe. Leaves are used. Inherent substance Digitalin alcohololide. It is specially grown for production.
- Eğreltiotu, Fern (*Aspidium filix-mas*): Used as a rhizome drug. It has Felix acid, floroglucin and tannin. It is used as a worm reducer.
- Ökseotu/ Çekem/ Burç, Mistletoe/ Zodiac (*Viscum album*): This species grows naturally in fruit and forest trees in abundance. Birds are used as food and medicine. It is fed to pets at certain intervals for pharmaceutical purposes. Growers in forest trees are used for lung cancer, and those who grow in fruit trees are used for stomach cancer.

3.5. Important ornamental plants: Şakayık / Ayıgülü (Paeonia mascula), Erguvan

Gelin Yemişi (*Cercis siliquastrum*), Gül (*Rosa odorata*, *R. canina, R. dumalis, R, alba, R. moschata, R. centifolia, R. banksiae, R. alpina* etc.), Kekik (*Origanum* spp.), Karağan, Çobançırası (*Phlomis grandiflora* etc.), Papazkülahı (*Eunymus latifolius*), Akçaağaç (*Acer* spp.), Mürver *(Sambucus nigra*).

3.6. Fiber plants: Kendirotu/ Kenevir (Cannabis sativa), Pamuk/ Pambuk (Gossypium hirsutum), Keten (Linum usitassimum).

Conclusion and Recommendations:

Turks did not want to leave the experience of nomadism throughout history. Despite the fact that this style of life has weakened in recent years, it is still not abandoned. This experience is not an obligation, it is a choice. Therefore, local people who live especially in rural areas know wild plants more closely than our resident adaptable people and know better to use them. Over time, they begin to cultivate the most beneficial crops, and so the plants are cultured and traded. Local people who are in harmony with established life are less familiar with wild plants and less skilled in hand because they can easily reach to modern hospitals and pharmacies. Because the obligation in the countryside is not inhabited, there is not much need for folk medicine. The place of folk medicine leaves to modern medicine.

Since the days of mankind, mountains, hills, meadows, pastures, slopes and valleys, basins have always been regarded as a natural medicine pharmacy. In the 21st century, due to the understanding of the side effects of synthetic medicines, people have turned to supply natural necessities again. Treatment with medicinal plants or in other words preventive medicine or aromatherapy applications are being studied with great care. Of course, one of the most important features of treatment with medicines is; food, and strengthening the immunity (resistance) system of the living body.

The use of poisonous plants is not included in Turkish public pharmacy applications. There is an important level of consciousness among the Turks in the use of medicinal plants. In Jaundice ill, they use yellow flowering plants, yellow flowers, yellow roots. *Ranunculus* flowers (for joints) are used against sun-blooming leaves of the species of the genus *Salix* (willow), hyacinths for the rheumatic diseases, seeds of *Hyoscyamus* and *Datura* are used against the worms in the eye and mouth wounds.

Helichryssum stoechas (Altınotu in Turkish) ... tried to reduce urinary tract ailments and stones. The results are positive. *H. plicatum* is good for pregnant women in diabetic women. Experiments were performed in rats given tea extract. Plants carrying vitamin C are also antioxidants. Article 18c,j of the Biological Diversity Convention sees the folk medicine and demands the continuity of folk medicine (Sezik, 2016).

Keçiborlu and its surroundings produce rose, lavender and lily. The industrial facilities related to the topic of the field where the other fragrant plants such as thyme, sage, juniper etc. are also processed are intensified. It will be a correct name to say "Itır Valley/ Fragrance Valley" in this area and it will be an effective slogan in tourism. Local authorities are expected to consider this proposal. The Provincial Directorate of Agriculture is also advised to evaluate the Keçiborlu area for scented plants.

Rosa L. are known as the genus of fragrant and beautiful-looking plants in Roseaceae family. It is known that roses have been used for medical purposes for at least 5000 years. The industrial smile in Türkiye is based on the cultivation of *Rosa damascena* Mill. (Isparta Gülü, Yağ Gülü) in the Lakes Region and the gain by processing the flowers in about 25 factories. There are about 25 oil rose (R. damascena) genotypes in Türkiye is estimated. This income is only a source of income for approximately 10,000 families in the province of Isparta. In recent times, terms such as fruit rose, paint rose, cut flower, miniature rose, glass rose have been introduced and the smile has been diversified. Landscape roses are also classified as cane roses, uneven roses, ivy and seat roses. Rose oil, rose concreti, rose absolute and rose water from rose are obtained. These raw materials are going to be used in cosmetics, perfumery, cleaning products, food and candy, and the products are diversified. Approximately 65% of the world's needs are met from Türkiye.

Lakes Region's industrial scented plants: According to the order of importance; rose, lavender, lily, kebere, thyme, yakbin, juniper etc. It is based on rose production based to *R. damascena.* Essential oil is obtained from these scented flowers. The economic value is about 8500 Euro / Kg.

The present study was undertaken in all parts of Türkiye between 2006 and 2007. All provinces were surveyed and all forms of scented roses were collected and identified. Notes have been taken during surveys by interviewing local people. The most diverse use of roses found in Gümüşhane province. Industrial use of roses was found most in Isparta, Tokat and Gümüşhane provinces. *Rosa* x *damascena* was the industrial type and approximately 25 different forms of this species were identified in this study. Damask rose had the highest percentage of volatile oils when collected during early morning hours (0,05 %), and amount of distilled volatile oil declined when flowers were collected afternoons (0,02 %). Naturally grown species had the lowest levels of volatile oils in their flowers. Number of factories is 25; for each day 50 tones rose flower produce in Isparta province. There are 2 factories to produce rose fruits in both Tokat and Gümüşhane provinces. The most common usage of scented roses was production of rose jams and marmalades from petals and fruits, rose water, rose syrup, dried flowers and petals for decoration and smelling, rose vinegar. Fruits of wild roses were used to make rose tea, in general.

It is under the influence of a microclimate formed by the influence of Burdur Lake in the central state of the aromatic plants such as Keçiborlu (Kılıç, Senir, Ardıçlı, Kuyucak, Saracık, Gülkent villages) and Güneykent (Gönen) and Burdur center villagers (İnar, İlyas, Karakent, Kavak, Başmakçı etc.). It is imperative to understand and protect the ecological significance of Burdur Lake in order to sustain the cultivation of aromatic plants in the region. There are important initiatives in the villages near Burdur Lake. They are both skilled in producing different agricultural plants and producing agricultural products. For example, in the village of İlyas (Burdur) vinegar varieties have been made since ancient times. The village is the most experienced field in vinegar production of the region. At the same time, settlement centers around Lake Burdur are the center of production and processing of medical aromatic plants. In the light of these endings, the suggestions for the development of agriculture in the region are as follows:

- Organizations related to fragrant plants should be strengthened. Exchange of volatile oil plants should be established. Action plans should be prepared in line with the objectives of improving the sector's development and regional cooperation by evaluating the existing potential of the city; working groups and committees should be established to pass these plans to life.
- In the vicinity of Keçiborlu-Dinar, agriculture-based industry should be encouraged. In fact, large industrial enterprises should be replaced by family/ peasant type enterprises, factories should also undertake marketing of oil produced by small enterprises as well as production. Solid-fuel, portable, easily portable distillation equipment (boilers) are needed for villagers, families and small businesses. KOSGEB, BAKA and Rural Development should support such initiatives.
- More than 10,000 families earn money from oil rose. We have over 100 years of experience. We have high product processing capacity (800 tons of rose flower for per day). We have trained personnel and modern laboratory facilities. Tourism activities are increasing in the world, there is an increase in demand for safety. Rose and other aromatic plants are also rising in tourism potential. Especially with the production of rose and rose products, we have an important place in the aromatic plant sector both in the country and in the world. Isparta Rose is a brand value. For this reason, there is a need for meaningful rose festivals, far from the daily politics of competing in literature, agriculture, production, product processing and development.
- A rose museum in our city is unfortunately not established and its establishment is not on the agenda. SDU. Botanical Garden is a very important opportunity for especially Isparta. The city regards this place as a promenade and a political polemic tool. We must increase our contributions to the region and country's economies by completing our missing

directions and evaluating our Isparta province according to competitive conditions.

- We should also go to the rose sapling production and the fruit rose. We must capture modern technology in the process of roses.
- Fragrant plants for industrial purposes, especially oil roses, should be evaluated in the context of industrial plants. Oil rose is still in support of ornamental plant status. The rose farmer is hurting himself.
- Producer certified seedlings / seedlings should be given. In this way, production is standardized and brand value is increased. The sale of oil rose should be prohibited except for for oil rose farming. The varieties should be determined according to the purpose and ecological environment, and the value of rose flowers should be appreciated according to the variety and production technique (such as organic agriculture).

Table 2. Cosmetic product exports of Türkiye for 2010-2013

Products	2010 (USD $)	2011 (USD $)	2012 (USD $)	2013 (USD $)
Essential Oils	17.493.000	22.176.000	24.793.000	25.154.000
Mixtures of fragrant materials used as raw materials in the industry	23.567.000	27.767.000	37.194.000	50.512.000
Perfumes and Toilet Waters	36.045.000	37.757.000	43.990.000	44.946.000
Beauty-Makeup & Skin Care Products	96.350.000	125.085.000	130.455.000	140.683.000
Hair Care Products	105.601.000	118.036.000	124.808.000	152.657.000
Oral-Dental Health Products	9.489.000	9.193.000	11.168.000	15.163.000
Shaving Products, Body Deodorants, Toilet Products	203.512.000	218.699.000	248.797.000	277.225.000
TOTAL	492.057.000	558.713.000	621.205.000	706.340.000

- Most of the fruit trees are of Mediterranean origin. At least half of the fruit trees in Türkiye are for the Rosaceae family. Mediterranean region is gene centers of medicinal and aromatic plants. Why is an extract and package factories established in a region that is the gene center of Umbelliferae (Kerevizgiller), Lamiaceae (Balıibagagiller) and Rosaceae (Gülgiller), the question is still unanswered.
- In addition to *Iris germanica* species, *Lilium* type may be more profitable if produced. *Lilium candidum* is a value that is more effective volatile oil than the current zambia.
- It is a late work selection process in all fragrant industrial plants, especially rose, lavender and lily varieties. The types that are efficient and compatible with the Isparta ecological conditions should be identified, registered and agricultural production should be spread over those types. This is a result that can be achieved in collaboration with Industry-University.
- In addition to the essential oil, the production of oiled plant waters should also be emphasized. Especially this process falls into small businesses. The inadequacy of quality rose water production in Isparta is sad. In order to increase processing time, drying and storage of raw material should be sought.
- In Süleyman Demirel University, there is a need for an accredited laboratory that can analyze volatile oils and standardize volatile oils. In this way, the needs of the sector will be covered in Isparta.

The economic value of the Sahlep group is very high. The gathering is also excessive in this measure. These crops must also be protected. The plans and projects should be carried out for the economic purposes of each taxon and for the continuity of the generations after the studies for determining the distribution areas are made (Anonymous, 2015).

The production of some mushrooms from the nature has increased considerably in the region. In the end, the region became a mushroom production center. Drying facilities were established. However, it was not possible to reach the expected sales. While mushroom production and processing are becoming widespread in the region, ways to sell and make medicines should be sought.

Important industrial plants from medical point of view: Afyon *(Papaver somniferum),* Karabaş otu/ Lavanta (*Lavandula* spp.), Ökseotu/ Burç (*Viscum album*), Gül (*Rosa damascena*), Kuşburnu (*Rosa alba, R. dumalis, R. canina, R. beggeriana* vs.) Acıyavşan/ Pelinotu (*Artemisia absinthium*), Yüksük otu *(Digitalis purpurea*), Mürver *(Sambucus nigra*), Meryemana dikeni (*Silbyum marianum*), Civan perçemi/ Ayvedana (*Achillea millefolium* etc.), Kantaron/ Binbirdelikotu (*Hypericum* spp.), Tatula / Boru çiçeği *(Datura stramonium*, *D. inoxia),* Papatya *(Matricaria chamomilla*), Kırlangıçotu (*Chelidonium majus*), Eğirkökü (*Acorus calamus*), Gölsoğanı (*Leucojum aestivum*), Şekerotu (*Stevia* spp.) (Orav vd., 2006).

Table 3. A comparison of the floristic studies performed in and around the study area.

Research Areas	Total Taxa	Endemism Ratio %	The biggest 3 families*	The biggest 3 genera**
Kasnak Meşesi Nature Protection Area (Isparta) (Özen and Fakir, 2015)	442	15,61	Fabaceae, Asteraceae, Lamiaceae	*Trifolium, Astragalus, Silene*
Yaylabel (Isparta) (Şenal, 2011)	271	13,65	Asteraceae, Fabaceae, Lamiaceae	*Silene, Astragalus, Centaurea*
Dedegül Mountains (Isparta-Konya) (Peşmen and Güner, 1976)	824	18,69	Asteraceae, Fabaceae, Caryophllaceae	*Silene, Astragalus, Ranunculus*
Sütçüler (Isparta) (Özçelik and Korkmaz, 2002)	587	26,20	Fabaceae, Asteraceae, Caryophyllaceae	*Silene, Trifolium, Ranunculus*
Aksu (Isparta) (Özçelik and Öztürk, 1999)	658	25,20	Asteraceae, Lamiaceae, Caryophyllaceae	*Silene, Veronica, Astragalus, Centaurea*
Barla Mountain (Isparta) (Bekat, 1987)	645	17.05	Asteraceae, Fabaceae, Lamiaceae	*Astragalus, Centaurea-Trifolium- Silene-Euphorbia, Veronica*
Bozburun Mountain (Antalya-Isparta-Burdur) (Fakir, 2006)	645	16,12	Fabaceae, Asteraceae, Lamiaceae	*Silene, Trifolium, Ranunculus*
Burdur (Özçelik et all., 2016)	1580	25,31	Asteraceae, Fabaceae, Lamiaceae	*Astragalus, Verbascum, Centaurea*
Kızıldağ National Park (Isparta) (Mutlu and Erik, 2003).	786	15,72	Asteraceae, Fabaceae, Rosaceae-Poaceae	*Ranunculus, Allium, Veronica*
Davras Mountain (Isparta) (Özçelik et all., 2001)	415	25,80	Fabaceae, Asteraceae, Brassicaceae	*Silene, Veronica, Astragalus*
Kovada Gölü National Park (Isparta) (Fakir, 2007)	367	15,25	Fabaceae, Asteraceae, Brassicaceae	*Silene, Trifolium, Astragalus*
Gölcük Lake (Isparta) (Fakir and Dutkuner, 1999)	227	28,20	Fabaceae, Carypophyllaceae, Asteraceae	*Astragalus, Silene, Vicia*
Kovada Arboretum (Çetinkaya, 2005)	350	12.3	Asteraceae Fabaceae Lamiaceae	*Galium, Silene, Ranunculus*
Beyşehir Lake and its Environs (Konya) (Küçüködük, 1988)	-	10.12	Fabaceae, Poaceae, Asteraceae	*Trifolium, Astragalus, Trigonella*
Köprülü Kanyon National Park (Antalya-Isparta) (Özçelik et all., 2002)	707	32.50	Lamiaceae, Fabaceae, Asteraceae	*Ranunculus*, *Veronica*, *Geranium*
Yeşildağ-Kurucuova (Konya) (Serin and Çetik, 1984)	512	11.52	Poaceae, Asteraceae, Brassicaceae	*Astragalus, Trifolium, Silene*
Sultan Mountains (Afyon-Isparta-Konya (Ocakverdi, 1984; Özçelik and Özhatay, 2005)	587	14.0	Asteraceae, Fabaceae, Poaceae	*Astragalus, Silene, Hypericum*
Yandağ (Isparta) (Kargıoğlu and Ertuğrul, 1995)	729	13.80	Fabaceae, Asteraceae, Poaceae	*Salvia,Astragalus, Trigonella*
Akşehir (Konya) (Küçüködük and Çetik, 1984)	-	0.80	Asteraceae, Poaceae, Fabaceae	*Ranunculus, Juncus, Polygonum, Potamogeton*
Derebucak-İbradı-Akseki (Demirelma and Ertuğrul, 2009).	960	17.3	Asteraceae, Caryophyllaceae, Liliaceae	*Sideritis, Astragalus, Silene*
Isparta (Özçelik and Serdaroğlu, 2000)	2280	28.50	Asteraceae, Fabaceae, Poaceae	*Astragalus, Silene, Verbascum*

*The order of three families involving the most taxa; **The order of three genera involving the most taxa;

Table 3 shows that; there are very different habitats in Lakes region. The plant groups of each habitat indicate that the cultivation of the cultivated plants from the same group in the relevant area will be appropriate. In front of the Fabaceae family around Isparta, Sultan Mountains, Köprülü Canyon, indicates the suitability of the ecological environment for growing legumes. The first place around Lake Beyşehir shows the most suitable growing area for Legumes like sugar bean. The presence of the Caryophyllaceae family and the genus Silene in the vicinity of Lake Gölcük indicates that the production of carnations in the village of Deregümü village (Isparta) will be successful. The arrival of the Rosaceae family in the Kızıldağ (in Şarkikaraağaç) indicates that the production of strawberries will be successful. Samples can be duplicated. At the same time, the natural flora provides vital plant material for agriculture to the region. The richness of local flora in terms of economic plants has made the region an important agricultural center. The success of rose cultivation is explained by the fact that the gene center is the Dedegül mountain. This wealth is reflected in technology over time. In Burdur and Isparta, important agricultural machines are produced.

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