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From Nature to Medicine: The Growing Role of Medicinal Plants in Pharmaceutical Products

Gülyar Ekmekçi[1], Hülya Çelik[2*]

1 Ağrı İbrahim Çeçen University, Faculty of Pharmacy, Ağrı, Turkey gulyarekmekcii@gmail.com

2 Agrı Ibrahim Cecen University, Faculty of Pharmacy Basic Pharmaceutical Sciences Department / Fundamental Sciences of Pharmacy 04100 Agri/TURKEY

Corosponding ; hycelik@agri.edu.tr

ABSTRACT

In this study, the importance and effects of the use of medicinal plants in pharmaceutical products were examined. Medicinal plants are natural resources that have many beneficial effects on human health, and they have been used for centuries in the treatment of various diseases. Medicinal plants used in pharmaceutical products have great potential in the pharmaceutical industry and contain active ingredients used in the treatment of many diseases. As a result, it is emphasized that the use of medicinal plants in pharmaceutical products is important for health and more research and development studies are needed in the future.

The aim of this study is to obtain information about the types of medicinal plants and to understand which parts are used in pharmaceutical products and for what purpose. This study on the importance and potential of the use of medicinal plants in pharmaceutical products aims to create more awareness in related fields and contribute to the widespread use of these plants in the future.

Keywords : Medicinal plant, pharmaceutical product, treatment,

1. INTRODUCTION

Today, people's search for natural and herbal solutions to their health problems is increasing. In this case, the use of medicinal plants in pharmaceutical products has become an important issue. Herbal treatments, which are increasingly preferred in the field of modern medicine as well as traditional medicine, have the potential to be effective in protecting and improving human health.

The use of medicinal plants in pharmaceutical products both enables more active use of natural resources and offers an alternative solution against the side effects of synthetic chemicals. Medicinal plants have been used for centuries in various cultures to treat health problems. The rich herbal resources offered by nature can help in the treatment of many diseases thanks to the bioactive components they contain. The use of plants in pharmaceutical products, on the other hand, ensures that these bioactive components are obtained by technological methods, standardized and made available to people.

The use of medicinal plants in pharmaceutical products involves an important research and development process, as the efficacy and safety of the plants must be scientifically proven. In order for plants to be used in pharmaceutical products, many factors such as the structure and effects of the bioactive components they contain, the correct extraction and standardization of plant extracts, and the forms of their effects should be examined in detail.

The use of medicinal plants in pharmaceutical products has many advantages such as the sustainability of natural resources, contributing to the income sources of local peoples, positive effects on the environment and possible benefits to human health.

This thesis study aims to examine the use of medicinal plants in pharmaceutical products. This study, in which issues such as how medicinal plants are used in pharmaceutical products and which plants are effective for which diseases will be discussed in detail, will shed light on an important issue from both scientific and clinical perspectives. This thesis study aims to reveal important findings that will contribute to the expansion of the use of medicinal plants in pharmaceutical products and their more effective use.

Medicinal Plant

Plants whose one or more parts are therapeutic, preventive of diseases, or precursors of chemical pharmaceutical synthesis are called medicinal plants [1].

Medicinal plants are used for the internal and external use of substances obtained from various parts of plants and these parts in the treatment of diseases.

Today, medicinal plants are used not only for the treatment of diseases, but also in various fields such as phytotherapy, pharmacy, food, spices, cosmetics, dyes and agriculture. These plants can be categorized according to their families, organs used, active ingredients they contain, consumption patterns, intended use, and pharmacological effects [2].

History of Medicinal Plants

Natural resources have been used by humans for therapeutic purposes throughout history. Herbal therapy is accepted as a traditional, complementary or natural form of treatment around the world and is widely practiced, especially in undeveloped countries. The information about herbal treatment recorded in the Mesopotamian civilization in 5000 BC reveals a tradition that has continued from the past to the present. It has been determined that more than 250 herbal drugs were used during this period [3].

The first written sources on herbal treatment are based on the Nineveh tablets and reveal that herbal treatments were used in Sumerian, Assyrian and Akkadian civilizations [4].

Documents have been found that the Sumerians used poppy in 2500 BC, that the Assyrians used plants in the Babylonian Palaces in the 1770s BC, and that herbal formulations were made in Egypt from the Eber Papyrus of the 1550s BC. While Ayurvedic Medicine, which dates back to 2000 BC, constitutes the origins of herbal treatment, the herbal treatment practices of Hippocrates, who is considered the father of medicine in 400 BC, are also known. In the post-Christ periods, herbal treatments became widespread and the knowledge in this field increased even more with Dioscorides' book "Materia Medica". Until the 1800s, herbal products were used for the treatment of patients, either by using the whole plant or parts of the plants directly, or by various formulations such as extracts, lotions, creams diluted with organic solvents. French physician Henri Leclerc first used the term phytotherapy, which refers to the treatment method obtained from plants. Phytotherapeutic products are natural products in which powders or other forms obtained from herbal extracts or different parts of plants are prepared based on appropriate monographs. These products have been based on scientific foundations by obtaining the effective components of plants in pure form [5].

Today, medicines made from natural ingredients make up a large part of the market. The first legal regulation on herbal medicines was made in 1986 at the 4th International Conference of Pharmaceutical Licensing Authorities. The World Health Organization defines herbal medicines as "the roots, leaves, flowers, bark, seeds of plants or extracts obtained from them or products obtained as a result of processing these materials". Herbal drugs, on the other hand, are the parts of medicinal plants used for therapeutic purposes or extracts obtained from these parts [6].

Uses of Medicinal Plants

Medicinal plants are important resources used in many different industries. Depending on the level of development, the use of herbal products for therapeutic purposes may vary in countries. For example, in developing countries, 80% of people are treated with herbal products, while this rate is lower in developed countries. Turkey is known for having a rich plant flora and is home to many different plant species. These plants can be used with wet or dried form. Different organs of the plant, such as stems, leaves, flowers, seeds, tubers and bark, are used for different purposes and methods. In Turkey, medicinal aromatic plants are generally collected in the Aegean, Mediterranean, Southeastern Anatolia, Marmara and Eastern Black Sea regions. These plants are widely valued in various industries such as food, cosmetics, paints, textiles, pharmaceuticals, and agriculture [2].

Importance and Examples of Medicinal Plants

Herbal medicines are therapeutic preparations containing raw or processed components derived from one or more plants and have benefits for human health.

The use of herbal medicine is increasing day by day in the world. The reasons for this increase include cultural values, belief systems, easy accessibility, cost and the perception of naturalness. As a result, low-income groups also prefer herbal medicines. However, it should not be forgotten that herbal medicines are not always safe and do not have harmful effects due to their natural nature [7].

Examples of herbal products that are common in our country are thyme, coral pavilion, menengich, wild fennel (Table 1).

Table 1. Plants Used in Some Disease Treatments (Göktaş and Tickle 2019)

DISEASE NAME	PLANTS USED IN TREATMENT
Kidney Disease	Golden grass, horsetail, split grass
Indigestion	Anise, dill, galangal, cumin, chamomile, fennel, allspice, ginger
Hemorrhoid	Yarrow, rosehip, thuja, cockatiel, ginger
Constipation	Flaxseed, fennel, senna
Heart Disease	Hawthorn, mistletoe
Cancer Disease	Nettle, paprika, turmeric
Liver Disease	Artichoke, chicory, privet, turmeric
Menopause	Sage, anise, yarrow, cloves, chamomile, cinnamon
Stomach Bleeding	Yarrow, rosehip, sumac
Prostate	Ewer root, nettle, green tea, turmeric
Romatism	Anise, horsetail, rosemary, cloves, thyme, lavender, lemon balm, chamomile
Kesei Crop	Goldenrod, yarrow, chicory, wormwood, turmeric
Colds, Colds and Coughs	Juniper, hibiscus, echinacea, linden, cloves, licorice, mint, eucalyptus, chamomile, ginger
Stress, Depression and Anxiety	Anise, St. John's wort, lavender, lemon balm, chamomile, fennel, hops

Forgetfulness and Memory Weakness	Sage, rosemary, cardamom, green tea, ginger
Sleep Disturbance	Anise, primrose, valerian, lemon balm, chamomile, fennel, hops
Fatigue	Sage, rosemary, licorice, cardamom, thyme, rosehip, ginger
High Cholesterol	Rosemary, thyme, rose hips, grape seeds, green tea, ginger
High Sugar	Pomegranate, mahlep, myrtle, cinnamon
Attenuation	Rosemary, cherry stalk, mate leaf, corn silk, fennel, senna, green tea, ginger, turmeric
Stomach Pain and Nausea	Ewer root, mint, ginger

Pharmaceutical Product

Pharmaceutical products are a combination of active ingredients of natural or synthetic origin that are applied to the human body with the aim of treating diseases, relieving symptoms or regulating physiological functions [8]. According to the World Health Organization, drugs are substances that are used or intended to be used to modify or study physiological systems or pathological conditions [9].

Classification of Pharmaceutical Products

Prescription drugs: Medicines used to treat certain health conditions are usually taken with a prescription from a healthcare professional. This requirement arises from the fact that the drug is both therapeutic and potentially harmful. The correct use of the drug in the correct way and dose takes place under the supervision, guidance and supervision of the professional health professional. This approach aims to maximize the therapeutic effect of the drug while minimizing its harmful effects.

Over-the-counter drugs: These are safe and effective drugs that can be used in the treatment of simple ailments, without the need for a doctor's intervention, with the advice of a pharmacist. These medications are usually designed for short-term use, and the potential side effects are minimal. However, caution should also be exercised in the use of these drugs and the recommended doses should be followed

Intermediates: These are the products sold with a permit that creates a separate category with prescription and non-prescription drugs in Turkey. The 'Intermediate Product Guide' published by the TİTCK contains detailed information on such products. In the guideline, intermediates are generally classified as treatment-supporting, health-protecting, natural or other pharmaceutical products. Example:

Herbal pharmaceutical products: Includes products such as ear-nose hygiene preparations, artificial sweeteners, vitamin and mineral solutions, protein and amino acids, rectal preparations, herbal teas, cough and throat lozenges.

Pharmaceutical products that help the treatment applied topically: Creams, ointments, soaps, shampoos, lotions, antiseptics, special dental preparations, disinfectants, callus formulations, burns, cooling sprays, acne formulas, wart preparations, nail, foot and leg products, aroma therapeutics, massage preparations.

Topically applied non-pharmaceutical products (other than cosmetics): Includes formulations that are not for therapeutic purposes, come into contact when applied to the skin and are used as repellent disinfectants. It covers products such as sprays, ointments, wet wipes, lotions [10].

Use of Medicinal Plants in Pharmaceutical Products

***Aesculus hippocastanum* (At kestanesi)**

Part Used: Seeds (Figure 1).

Active Ingredient: Contains triterpene saponin, consists of protoessigenin and barringtogenol C derivatives. Essin content is available.

Effect and Usage: It prevents edema, reduces exudate formation and has a strengthening effect on capillary vessels. It has anti-inflammatory properties [6].

Preparations: Venotrex retard film-coated tablet, Reparil gel n.

Figure 1. Aesculus hippocastanum (Horse chestnut) Plant (wikipedia.org/wiki/At_kestanesi)

***Allium sativum* (Sarımsak)**

Part Used: Bulbs (Figure 2).

Active Ingredient: Allicin is a compound consisting of organosulfur compounds such as ajoene and S-allyl-L-cysteine.

Effect and Usage: It is a natural antibiotic that protects against heart disease by lowering high blood pressure and lowers high cholesterol and triglyceride levels. Therefore, Allicin has positive effects on heart health [11].

Preparations: Circulin Garlic Dragee, Inod'Ail Garlic Capsule

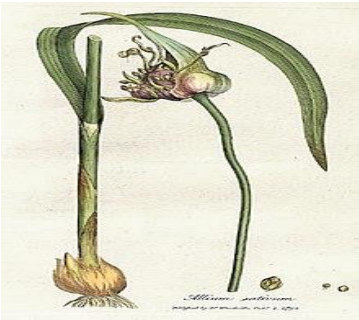

Figure 2. Allium sativum (Garlic) Plant (wikipedia.org/wiki/Sar imsak)

Mentha *piperita* (Nane)

Part Used: It is the essential oil obtained from the leaves and aboveground parts (Figure 3).

Active Ingredient: Contains menthol, menthone components, carvone and flavonoid glycosides.

Effect and Usage: It has antioxidant, antiseptic, antimicrobial and refreshing properties. It also has antispasmodic and carminative, stimulating and diuretic effects. It can be used in herbal teas and as a spice [12].

Preparations: Steamed Molt, Eucarbon Tablet

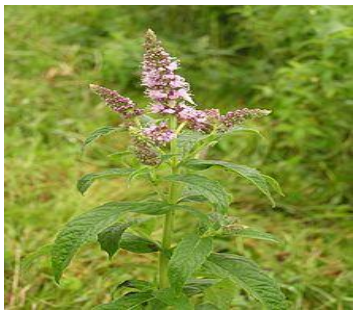

Figure 3. *Mentha piperita* (Nane) Bitkisi (wikipedia.org/wiki/Nane)

***Thymus vulgaris* (Kekik)**

Part Used: Above-ground parts and essential oil (Figure 4).

Active Ingredient: Thymol, p-cymene, γ-terpinene, carvacrol, β-caryophyllene.

Effect and Usage: It has urine-enhancing, expectorant, relaxing, regulating blood circulation, effective on the nervous system, sterilizing the respiratory tract. It is also stated to be useful in toothaches and breath odor, appetite, indigestion, gas and inflammation relief, diarrhea, colds, rheumatism and gout [13].

Preparations: Algo-wax Pomad, Algo-wax Simple Pomad.

Figure 4. *Thymus vulgaris* (Kekik) Bitkisi (wikipedia.org/wiki/Kekik)

***Zingiber officinale* (Zencefil)**

Part Used: Rhizomes (Figure 5).

Active Ingredient: Ingerol, shogaol, zingiberene, zingeron and paradol compounds.

Effect and Usage: It is used as an herbal medicine in the treatment of many diseases such as vomiting and nausea, constipation, dyspepsia, joint and toothache, colds. It also has hypoglycemic, anticoagulant and anti-cholesterol properties. It also has anti-inflammatory, anti-cancer, anti-thrombotic, anti-microbial and analgesic effects [14].

Preparations: Nature's Bounty Ginger Root Capsule, Herbasist Herbamix Lozenge

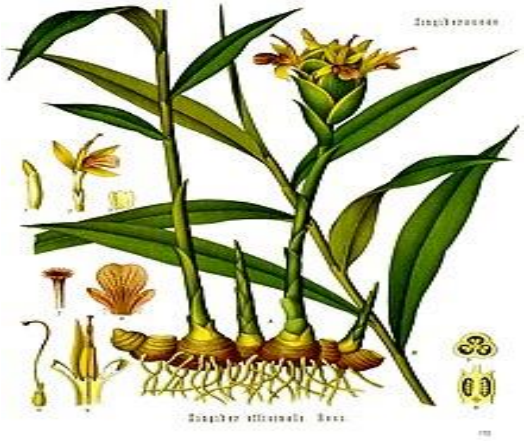

Figure 5. *Zingiber officinale* (Zencefil) Bitkisi (wikipedia.org/wiki/Zencefil)

***Ginkgo biloba* (Temple tree)**

Part Used: Leaves (Figure 6).

Active Ingredient: It contains components such as terpenoids, flavonoids, organic acids, phenolics.

Effect and Use: It is used for disorders affecting the circulatory system, cardiovascular diseases, eye and ear problems, neurological disorders, memory loss, brain injuries, mental problems, memory loss and conditions associated with old age [15].

Preparations: Ginexin-F Tablet, Gingobil Special Film, Tebokan Fort Drops, Tebokan Fort Film Tablets**.**

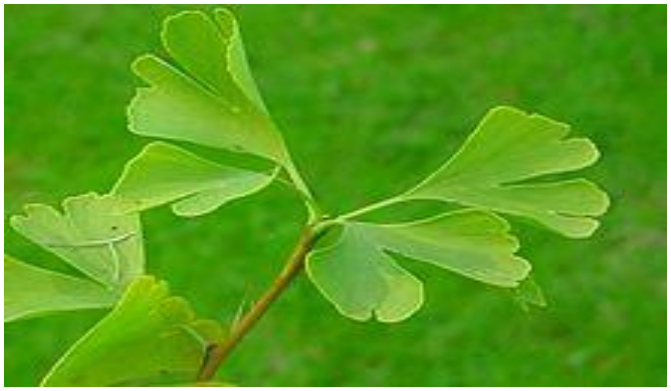

Figure 6. *Ginkgo biloba* (Temple tree) Plant (wikipedia.org/wiki/Mabet_ağac ı)

***Camellia sinensis* (Çay)**

Part Used: Leaves (Figure 7).

Active Ingredient: Contains methyl xanthines (caffeine, theophylline, theobromine), flavone compounds, tannins (epigallocatechin, epicatechin), proanthocyanidin derivatives, saponins and caffeic acid.

Effect and Use: It is used in the prevention and treatment of metabolic diseases such as cardiovascular diseases, obesity, diabetes, reducing oxidative and inflammatory stress, strengthening the immune system and protecting against bacterial and viral diseases, and reducing the risk of cancer and neurological diseases [16].

Preparatları: Activate T Tablet, Cassia angustifolia Vahl.

Figure 7. *Camellia sinensis* (Çay) Bitkisi (wikipedia.org/wiki/Çay_(bitki)

***Passiflora incarnata* (Passionflower)**

Used Part: It is the above-ground parts (Figure 8).

Active Ingredient: It contains alkaloids, flavonoids, saponosides and cyanogenetic glucosides. Alkaloids; harman, harmol, harmin, harmalol and harmalin.

Effect and Usage: It has hypnotic-sedative, analgesic, antispasmodic, antiasthmatic effects. It is used in the treatment of disorders such as neuralgia, neurosis, epilepsy, dysmenorrhea, anxiety [17].

Preparations: Alora Syrup, Alora Tablets, Natracalm Tablets, Passiflor Capsules, Passiflora Syrup.

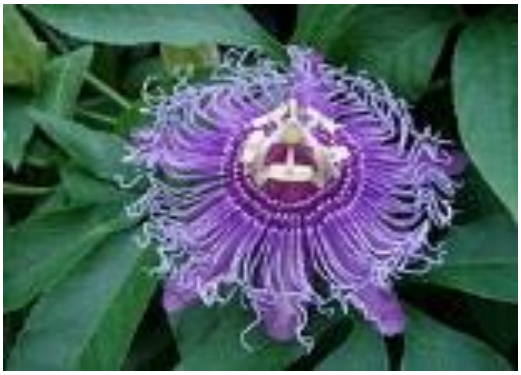

Figure 8. *Passiflora incarnata* (Passionflower) Plant (wikipedia.org/wiki/Passiflora_incarnata)

***Valeriana officinalis* (Kedi Otu)**

Part Used: Rhizomes, roots and stolones (Figure 9).

Active Ingredient: Essential oil consisting of monoterpenes, iridoids, gamma-aminobutyric acid (GABA), glutamine and arginine components.

Effect and Usage: It is used with its calming effect in stress-related diseases such as sleep disorders, heart palpitations, migraine, restlessness [18].

Preparations: Circulin Valerian Tablet, Valériane Capsule.

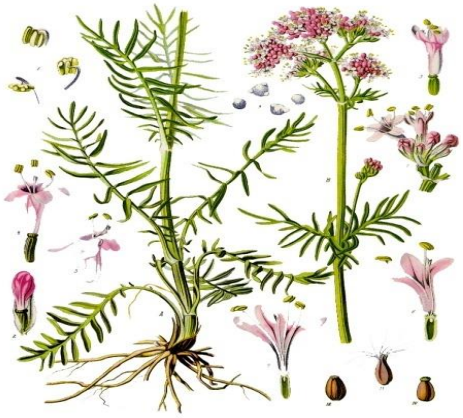

Figure 9. *Valeriana officinalis* (Cat Grass) Plant (wikipedia.org/wiki/Kedi_otu)

***Vitex agnus-castus* (Hayıt)**

Part Used: Fruits (Figure 10).

Active Ingredient: It carries diterpenes, iridoid glucosides, lipophilic flavonoids and essential oil.

Effect and Use: It is effective in abdominal and stomach pains, headaches, rheumatic joint pain, nausea, intestinal disorders, various gynecological diseases, diabetes, cardiovascular diseases, edema treatment and skin diseases such as eczema [19].

Preparations: Agnucaston Tablet

Figure 10. *Vitex agnus-castus* (wikipedia.org/wiki/Hay it) Plant

***Lavandula angustifolia* (Lavanta)**

Part Used: Flowers and essential oil (Figure 11).

Active Ingredient: It contains essential oil (linalyl acetate, linalool, cineole, camphor), tannin, flavonoid and coumarin type compounds.

Effect and Use: It has calming, anti-inflammatory, antioxidant, germicidal and fungicidal, insecticidal and larvacidal effects. It also has carminative properties, relieves depression, and protects against burns and insect bites [20].

Preparations: Algo-wax Pomad, Algo-wax Simple Pomad.

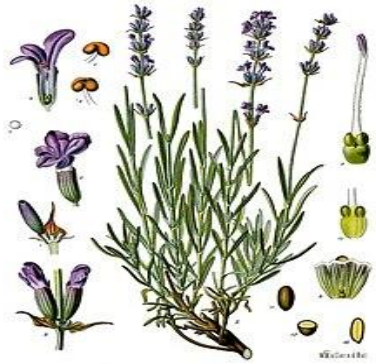

Figure 11. *Lavandula angustifolia* (Lavanta) Bitkisi (wikipedia.org/wiki/Lavandula_angustifolia)

Hedera helix **(Forest Ivy)**

Part Used: Leaves (Figure 12).

Active Ingredient: N-alkanols, monoacids, triterpenes, n-aldehydes and n-alkanes.

Effect and Use: Plant essential oils are effective against many types of microorganisms and insecticides. They also have antioxidant, antimicrobial, analgesic and anti-inflammatory properties. Extracts from plant leaves are used in the treatment of irritated cough with intense mucous membrane action [21].

Preparations: Prospan Syrup.

Figure 12. *Hedera helix* (Forest Ivy) Plant (wikipedia.org/wiki/Hedera_helix)

Ricinus communis **(Castor Oil Plant)**

Part Used: It is the fixed oil obtained from its seeds (Figure 13).

Active Ingredient: It consists of trilinolein, glycerol and ricinoleic acid.

Effect and Usage: It is used as a painkiller, antidote, laxative, expectorant. In addition, castor oil; abscess, asthma, cancer, cholera, influenza, epilepsy, headache, inflammation, muscle aches, rheumatism, burning, wound, abdominal pain, skin blistering, urinary tract inflammation and antipyretic [22].

Preparations: Riciment Emulsion, Ricillax Emulsion.

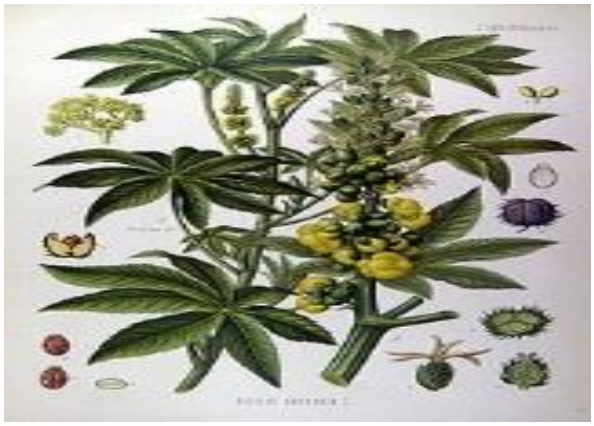

Figure 13. *Ricinus communis* (Castor Oil) Plant (wikipedia.org/wiki/Hint_yağ I_bitkisi)

2.7.14. *Vitis vinifera* (Grape Vine)

Part Used: Leaves, fruit and seeds (Figure 14).

Active Ingredient: It carries resveratrol and viniferins, flavonoids, tannins, proanthocyanidins, procyanidin oligomers, fruit acids such as malic, oxalic, citric, succinic, tartaric acid, phenylacrylic acid derivatives.

Effect and Use: This substance, which has strong antioxidant properties, is known for its anti-cancer effects. It also has protective properties for liver health. It can be used to prevent and treat problems related to vascular damage. In addition, thanks to its permeability effect on capillary vessels, it is also useful in problems such as edema, hemorrhoids and varicose veins [6].

Preparations: Antistax Gel, Antistax Hard Gelatin Capsules.

Figure 14. *Vitis vinifera* (Grape Vine) Plant (wikipedia.org/wiki/Vitis_vinifera)

***Centella asiatica* (Gotu Kola)**

Used Part: It is the above-ground parts (Figure 15).

Active Ingredient: Triterpenic acid and madekasic acid are major components.

Effect and Usage: It is used in the prevention of keloid and hypertrophic scars in wound and ulcerative skin diseases. Used topically to speed up the healing of wounds after surgery and trauma, this herb can also be effective in treating 2nd and 3rd degree burns. It is also used orally in the treatment of stress-induced peptic ulcers (23).

Preparations: Madecassol Ointment

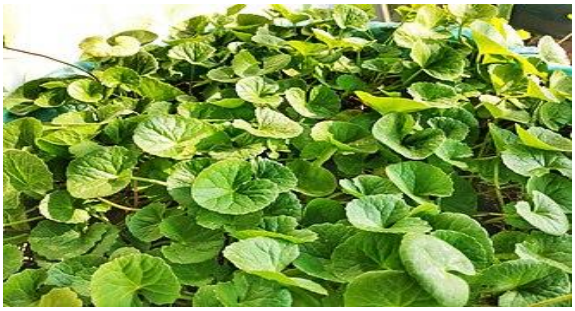

Figure 15. *Centella asiatica* (Gotu Kola) Bitkisi (wikipedia.org/wiki/Centella_asiatica)

***Pelargonium sidoides* (South African Geranium)**

Part Used: Roots (Figure 16).

Active Ingredient: Umcalin, gallic acid, proanthocyanidin type tannins, flavonoids.

Effect and Usage: It is effective in reducing the frequency and severity of crises in children with acute bronchitis, colds and asthma. It is used in these cases to alleviate the complaints of patients and is of great importance in the treatment process [24].

Preparations: Umca Solution, Umca Tablets.

Figure 16. *Pelargonium sidoides* (South African Geranium) Plant (Rymarz 2000)

***Harpagophytum procumbens* (Devil's Claw)**

Used Part: It is the tubercles and lateral roots in the underground part (Figure 17).

Active Ingredient: They contain iridoid compounds such as harpagid, 8-p-coumaroylharpagoside, phenylpropanoids, diterpenes, triterpenes, carbohydrates and sterols.

Effect and Usage: It is used in arthritis and rheumatic diseases due to its anti-inflammatory and analgesic effects. Thanks to these properties, it is effective in relieving disease symptoms and reducing pain [25].

Preparations: Harpadol Capsule, Harpago Film Tablets.

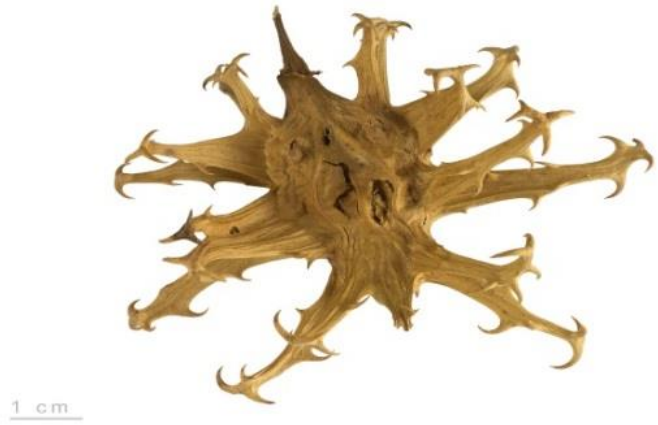

Figure 17. *Harpagophytum procumbens (*Devil's Claw) Plant (wikipedia.org/wiki/Harpagophytum)

***Nigella Sativa* (Rerec vote)**

Part Used: It is the oil extracted from the seeds (Figure 18).

Active Ingredient: Thymoquinone.

Effect and Usage: Anticarcinogenic, antidiabetic, antihypertensive, antiallergenic, antiasthmatic, antidiarrheal, anti-inflammatory, antirheumatic, anticoagulant, antimicrobial effects. It is used to treat stomach and kidney diseases, prevent AIDS, protect the heart and vessels, and lower cholesterol [26].

Preparations: Zade Vital Nigellin Soft Capsule 900 mg

Figure 18. *Nigella sativa* (Çörek Otu) Bitkisi (wikipedia.org/wiki/Nigella_sativa)

***Capsicum annuum* (Biber)**

Part Used: Dried ripe fruits (Figure 19).

Active Ingredient: Contains capsaicinoids (capsaicin, dihydrocapsaicin), essential oil, carotenoids.

Effect and Use: It is known for its high antioxidant power, has antimutagenic and anti-tumor properties. It also has anti-inflammatory and analgesic effects. While strengthening the cardiovascular and respiratory system, it also has an antimicrobial effect against pathogenic bacteria [27].

Preparations: Algo-wax Pomade.

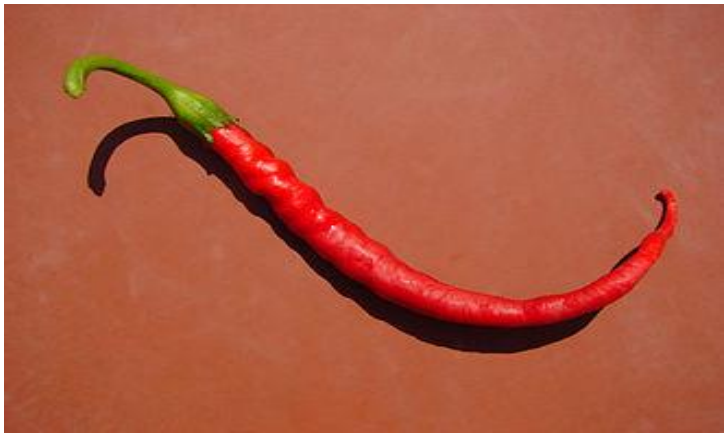

Figure 19. *Capsicum annuum* (Biber) Bitkisi (wikipedia.org/wiki/Capsicum_annuum)

***Cimicifuga racemosa* (Black Cohosh)**

Part Used: Rhizomes (Figure 20).

Active Ingredient: It contains triterpene glycosides, phenolic acids, flavonoids, essential oils, tannins and other pharmacological active substances.

Effect and Use: Underground parts play an effective role in respiratory tract diseases such as asthma and whooping cough with their expectorant and cough suppressant properties. It has also been used for women's health issues such as menopause and dysmenorrhea [28].

Preparations: Remifemin Tablet, Remixin Tablet.

Figure 20. *Cimicifuga racemosa* (Black Cohosh) Plant (wikipedia.org/wiki/Actaea_racemosa)

3.CONCLUSION AND RECOMMENDATIONS

The use of medicinal plants in pharmaceutical products is gaining more and more attention as a natural and effective method of treatment. The use of plants for pharmaceutical purposes is a widely used and well-known practice in traditional medicine. However, research in the field of modern medicine and pharmacology provides scientific evidence of the positive effects of many plants on health.

Considering the potential of medicinal plants that we have examined in this thesis, it can be said that they can provide significant benefits in terms of the pharmaceutical industry and the health sector. Medicinal plants have natural

ingredients that are effective and have minimal side effects that can be used in the treatment of various diseases. Therefore, the use of medicinal plants in pharmaceutical products has significant potential to increase alternative treatment options and improve patients' quality of life.

Further research and development studies are required on the use of medicinal plants in pharmaceutical products. A better understanding of the active ingredients and effects of herbs will allow natural treatment methods to be used more effectively.

The use of medicinal plants in pharmaceutical products should be supported and encouraged. These natural treatment methods offer effective and reliable options in the treatment of diseases. In addition, the use and standardization of medicinal plants based on scientific research will allow these plants to be used more widely within the pharmaceutical industry. In conclusion, the use of medicinal plants in pharmaceutical products offers a new perspective and opportunities in the field of modern medicine and pharmacology. In this direction, it is an important step to better evaluate the potential of medicinal plants and to provide more support for future studies.

It is important to disseminate clinical trials and collect more data on the efficacy, safety and side effects of medicinal plants. Health institutions and media organizations should cooperate to create a society that is aware and educated about the use of medicinal plants in pharmaceutical products. In this way, the dissemination of natural treatment methods and public awareness can be ensured.

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