

Some Medicinal Aromatic Plants And Their Pharmacological Effects

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Abstract

Aromatic plants have played a major role in vital activities such as treatment, nutrition and warming since ancient times. This process, which started with trial and error, has gone a long way with the development of technology. Aromatic plants are widely used in our country as well as all over the world. With the changing conditions, the usage areas have increased over time. Its use in medical treatments has created a more accurate and desired alternative treatment method with its knowledge. The aim of this study is a brief review about the concept of aromatic plant, its history, its place in our country and its pharmacological properties.

Keywords: Medical, Aromatic, Nutrition, Pharmacological.

INTRODUCTION

Medical Aromatic Plant?

Aromaticity is the characteristic of unsaturated bonds, consisting of vacant orbitals or carrying electron pairs in the bare state, having a higher stability than expected, not easily broken down, and showing flat shape. Aromaticity can also be seen as a sign of cyclic delocalization and resonance. The concept of aromaticity has emerged because of the circularly arranged structures with the same bonds of electrons that can rotate freely around atoms that are alternately connected to each other by single and double bonds.

Although the exact definition of medicinal plants is not made, they are plants that are obtained from different parts of the plants and are useful in using these obtained substances in internal or external diseases. (Göktaş and Gıdık, 2019) Nowadays, the concepts of medicinal and aromatic are not used separately. Medicinal aromatic plants are plants that are used as medicine, which we start with instinct and continue with experience in order to stay healthy, prevent diseases and treat diseases. (Faydaoğlu and Driveroğlu, 2011) Apart from treatments, it is also used in various fields such as phytotherapy, pharmacy, food, spice, cosmetics, paint, agriculture. (Göktaş and Tickle, 2019)

The original material of herbal medicines is mostly in the group of medicinal plants. These herbal medicines obtained from medicinal aromatic plants; It is examined in three types as unprocessed, processed and herbal (herb) products. We can group these aromatic plants in different ways according to their families, organs used, content, consumption, pharmacological effects and very wide usage areas. (Göktaş and Tickle, 2019)

With the disappearance of species in medicinal plants, reliable cultivation, increased production and availability have both protected the species and increased profits. (Göktaş and Gıdık, 2019) In order for these plants to be used in health, a plant must be registered in the codex (Pharmacopeia). Official books written by countries for their own benefit are codex, and four of them (1930, 1940, 1948 and 1974) were written in our country. (Faydaoğlu and Süreroğlu, 2011)



Figure.1. Büyükdere /Erzurum / /TURKEY (H. Çelik)

History of Medicinal Aromatic Plants

Medicinal aromatic compounds have proven to be the most common medicine used from the earliest times to the present. (Varlı et al., 2020) People have been using plants since ancient times. Ancient civilizations such as the Hittites, Egyptians, Sumerians, Assyrians and Mesopotamians also aimed to use plants for health. (Göktaş and Gıdık, 2019) Medicinal aromatic plants have been used for centuries and have been useful in the fields of health, daily life and cosmetics and have survived to the present day. (Varlı et al. 2020) In mythology, all plants are for humans and are mentioned as one of the most important gifts given to humans. Since ancient times, many human diseases have been tried to be treated using aromatic plants, and these studies continue today. (Faydaoğlu and Süreroğlu, 2011)

The health benefits of chemical compounds in plants, which we can also call phytotherapy from the past to the present, have been noticed by people and their properties such as protecting health, preventing diseases and treating diseases have started to be used instinctively, and their use has reached today with successful results with experience. Such conclusions have been reached with written documents from ancient times. (Aslan and Karakuş, 2019) At first, people started to use plants for vital activities such as protecting and feeding themselves, and later they started to use them as cosmetics. (Gülğün et al. 2009)

With the development of the pharmaceutical industry, magistral drugs were replaced by prepared drugs, resulting in a decrease in the utilization of medicinal aromatic plants. Since the 1900s, there has been an increase in the use of medicinal aromatic plants due to the side effects of prepared drugs. The rules should be followed carefully in the collection, preparation and drying of medicinal aromatic plants. Because it can cause losses in plant species and toxic effects as a result of problems in dose adjustments. (Göktaş and Tickle, 2019)

The place of Medicinal Aromatic Plants in Our Country

Although the use of aromatic plants for therapeutic purposes varies according to the development of the countries, it is 95% in undeveloped countries, 80% in developing countries and less in developed countries. (Göktaş and Gıdık, 2019) With the increase in the usage areas of these plants, the demand for these products is increasing day by day. (Faydaoğlu and Süreroğlu, 2011)

These aromatic plants, which are used by approximately 80% of the world's population in the first stages of preventive and post-disease treatment, contain steroids, flavonoids, saponins, alkaloids, terpenes and phenolic compounds, which are bioactive secondary metabolites. Pharmaceutical effects of these secondary metabolites are antimicrobial, antifungal, antiallergic, antidiabetic, cardiovascular system protective, antioxidant, anticancer, antithyroid, antihistaminic, antimalarial, anthelmintic, antiinflammatory, antihypertensive, antispasmodic and analgesic properties. (Varlı et al. 2020)

Thanks to Turkey's ecological and geographical conditions, it is one of the leading countries in terms of medicinal and aromatic plants as a result of having a rich flora and this feature is used in medicine, cosmetics, food, etc. in developed countries. Thanks to its industries, it also affects the economy of our country well. (Faydaoğlu and Süreroğlu, 2011)

These aromatic plants contain around 11000 plant taxa as of 2019, and we use about 500 of these taxa medicinally. (Göktaş and Gıdık, 2019) All of these 500 plants used medicinally in our country are produced naturally and very few of them are produced synthetically. (Gülğün et al., 2009)

Classification

These plants have been classified in many ways until today. The most commonly used classifications in these classifications are as follows:

According to Plant Families: This classification type is a classification formed because there are many plants that have been discovered and continue to be discovered, and that plants belonging to the same family generally show the same pharmacological activity.

According to Pharmacological Effects: This classification is the classification made to find all plants with this medicinal effect

on the direct investigation of certain medicinal effects.

According to Active Ingredients: This classification has been used because the phytochemical properties of aromatic plants originate from the active ingredients of those plants. In this study, we gave the pharmacological activities of some of the aromatic plant species.

Pharmacological activities of some medicinal aromatic plants

Plant Name	family	Parts Used	Pharmacological Activities	Literature
<i>Coriandrum sativa</i> L.	Apiaceae	Fruits, leaves, roots, stems	Antimicrobial, antioxidant, antidiabetic, antihelminthic, diuretic, aniconvulsive, anticancer, anxiolytic, anti-inflammatory, cholesterol lowering, antihypertensive, hepatoprotective, insecticide, memory enhancer, protechnistic, antiprotozoal effect against heavy metal toxicity.	(Ulutas Deniz et al. 2018)
<i>Rhus coriaria</i> L.	Anacardiaceae	Fruits, leaves, roots	Antidiabetic, hypolipidic, anti-ischemic, antiviral, antibacterial, antifungal, scolidal, DNA preservative, non-mutagenic, anti-cancer, analgesic, passive avoidance learning, non-toxic effect.	(Saltan and Ünder, 2019)
<i>Nigella sativa</i> L.	Ranunculaceae (wedding flowers)	Seeds	Antimicrobial and antioxidant effect. Antituumör, antibacterial, anti-inflammatory, antioxidant, immune system booster (immunomodulator), gastroprotective (antiulsoy), antidiabetic, hepatoprotective, antihistamine, antihypertensive, antihyperlipidemic, anti-hyperglycemic and anti-cholesterolemic activity due to the phytochemicals it contains.	(Lighter and Cakir, 2011)

<i>Zingiber officinale</i>	Zingiberaceae	Roots	Cardio protective, anti-inflammatory, antimicrobial, antioxidant properties, antiproliferative, neuron protective, hepatoprotective activities.	(Pay, 2020)
<i>Curcuma longa</i>	Zingiberaceae	Rizomları	Antioxidant, anti-inflammatory, anti-bacterial and anti-atherosclerotic, reducing excessive phosphorylation of protein, intestinal microbiota, antihyperglycemic, antidiabetic, hypolipidic action.	(Erkul et al. 2021)
<i>Hypericum L.</i> (Yellow)	Hypericaceae	Plant, trunk	Antidepressant, wound healing, anti-inflammatory, antioxidant, antimicrobial, neurodegenerative diseases, cytotoxic, analgesic and antinospasmodic action.	(Ersoy et al. 2019)
<i>Juniperus L.</i> (Juniper Tree)	Cupressaceae	Fruits, leaves, branches	Antihelmintic, diuretic, stimulating, antiseptic, wound healing, antimicrobial, antibacterial, antifungal effect.	(Unver Alçay et al. 2018)
<i>Ziziphus jujuba Mill.</i>	Rhamnaceae	Fruit	Antitumor, anticancer, diabetic, antimicrobial, anxiolytic and hypnotic-sedative, anti-inflammatory, effect on the immune system.	(Hürkan, 2019)
<i>Linum usitatissimum L.</i>	Linaceae	Fibers, seeds	Effect on anticarcinogen, antiatherosclerotic, antioxidant, antimicrobial, bone density, lupus nephritis.	(Guest and Bahadır, 2004)

<i>Villain sylvestris L.</i>	Malvaceae	Flowers, leaves	Effect on antimicrobial, acetylcholine esterase inhibition, antioxidant, anticomplementer, anti-aging, cholesterol level.	(Anvil and Baldemir, 2013)
<i>Equisetum arvense</i>	Equisetaceae	Grass	Antioxidant, antiproliferative, antimicrobial, antibacterial, vasorelaxan, anxiolytic, sedative, preanesestic, dermatological, on the system of sunlight, anetidiabetic, antinosiseptive, anti-inflammatory, inhibition of diuretic, trombocyte aggregation, hepatoprotective, anti-leishmania, on the bones, over THE stability of the membrane, inhibitory activity of hyaluronidase.	(Al-Snafi, 2017) (Konuklugil, 2000)
<i>Cynara scolymus</i>	Asteraceae	Leaves	Hepatocurrative, milk coagulation, antioxin, anti-cancer, prebiotic, on anti-metabolic syndrome, anti-mantar, anti-ulcerogenic, anti-obesity, antifotoyasia, sinerjik, hipoglisemik, prebiotic, mitochondrial respiratory chain system, antihiperkolesterolemic activity.	(Miraj and Kiani, 2016) (Konuklugil, 2000)
<i>Cnicus benedictus</i>	Asteraceae	Grass	Antimikrobiyal, cytotoxic, antiinflamatuvar, healing of the yara, the effect of increasing digestion and increasing bile secretion.	(Al-Snafi, 2016), (Konuklugil, 2000)

<i>Matricaria recutita</i> , <i>Chamomilla recutita</i>	Asteraceae	Flower	Anti-inflammatory, immunomodulator, acaricide, antihyperglycemic, anti-cancer, antipruritic, yara healing, oral mucositis treatment, on intra-canal irritation agent, bebek botulism treatment, lüsidal , ovisidal and repellent, virüsidal time, treatment of gastrointestinal disorders, antimikrobiyal, treatment of anti ulcers, stres and depression, uterotonic, anti allergic, antisolar agent, poliovirüs replikasyonunun inhibisyonu, anxiolytic agent, activity to prevent osteoporosis.	(Gupta ve ark., 2010),(Konuklugil, 2000)
<i>Cinnamomum verum</i>	Lauraceae	Bark	Antimicrobial, antioxidant, antiinflammatory, anticancer, antidiabetic, wound healing, anti-HIV, anti-parkinson's, anxia, antidepressant activity.	(Singh et al. 2021), (Konuklugil, 2000)
<i>Echinacea purpurea</i>	Asteraceae	Roots, grass	Anti-inflammatory, antioxidant, antiimmunospressant, antifungal,antiviral activity.	(Kumar and Ramaiah, 2011), (Konuklugil, 2000)
<i>Achillea millefolium</i>	Asteraceae	Flower, grass	Choletic, antimalarial, antioxidant, antimicrobial, antihypertensive, estrogenic activity.	(Akram, 2013), (Konuklugil, 2000)

<i>Juglans regia</i>	Juglandaceae	Leaves	Antibacterial, antifungal, antiviral, antioxidant, antidiabetic, antihelmintic, anti-inflammatory, antidepressant, antithyrosis, hepatoprotective, hypoglycemic, anti-cancer activity.	(Taha and Al-wadaan, 2011), (Hosted, 2000)
<i>Valeriana officinalis</i>	Valerianaceae	Roots	Cardiovascular, gastrointestinal, anecsiolytic, hypnotic, neurological activity.	(Murti et al. 2011), (Konuklugil, 2000)
<i>Thymus vulgaris</i> (Thyme)	Lamiaceae	grass	Antiinflamatur, antibakteriyel, antiviral, insektisit aktivite.	(Prasanth et al. 2014), (Konuklugil, 2000)
<i>Urtica dioica</i> (Nettle)	Urticaceae	Grass, leaves	Antiinflamatur, analjezik, hepatoprotektif, antiviral activity.	(Asgarpanah, Mohajerani, 2012), (Konuklugil, 2000)
<i>Salvia officinalis</i>	Lamiaceae	Leaves	Antikanser, antimutajenik, antioxidant, anti-inflammatory, antinosiseptive, antiseptic, cognitive and memory enhancement, metabolic effects.	(Ghorbani and Esmailizadeh, 2017), (Hosted, 2000)
<i>Rosmarinus officinalis</i>	Lamiaceae	Leaves	Calegent, hepatoprotective, antitumorogenic, antimycotic effect on the central nervous system, on circulation, on flat muscle.	(Konuklugil, 2000)
<i>Mentha x piperita</i> (Dwarf)	Lamiaceae	Leaves	Antifungal, antibakteriyel, antioksidan activity.	(Marotti et al. 1994), (Konuklugil, 2000)

<i>Citrus aurantium</i> (Bitter orange)	Rutaceae	Perikarpiyumu	It's effective on cardiovascular, cancer, obesity.	(Suryawanshi, 2011), (Konuklugil, 2000)
<i>Ilex paraguariensis</i> (Mate)	Aquifoliaceae	Leaves	Antioxidant, kilo management and obesity, genotoxic and mutagenic, effective on cancer prevention.	(Heck ve Mejia, 2007), (Konuklugil, 2000)
<i>Glycyrrhiza glabra</i>	Fabaceae	Roots	Antioxidant, inflammatory, antitussive, phlegm remover, anti-ulcerative, antimicrobial, antiviral, hepatoprotective, anticancerogenic, antimutagenic, neuroprotective, sedative, antidepressant, estrogenic, androgenic activity is effective on the skin.	(Pastorino et al. 2018) (Konuklugil, 2000)
<i>Melissa officinalis</i> (Melisa)	Lamiaceae	Leaves	Antianxitis, antidepressant, neuralprotective, anti-inflammatory, antinosiseptive, hypoglycemic, hypolipidemic, antioxidant, antimicrobial, antiviral, antispasmodic, anti-angiogenic, antiepileptic activity. It's cystic, cytotoxic on mood, cognition and memory.	(Shakeri, Sahebkar, Javadi, 2016) (Konuklugil, 2000)
<i>Lavandula angustifolia</i>	Lamiaceae	Flower	Anxiety, postpartum perineum disorder, effective on the cancer. Antibiotic, hypnotic (sleep state) spasmolytic effect.	(Basch ve ark., 2004) (Konuklugil, 2000)

<i>Humulus lupulus</i> (Hops)	Cannabaceae	Strobilus	Activity on sedative, estrogenic, anticancer, antibacterial, antifungal, mide.	(Zanoli ve Zavatti, 2008) (Konuklugil, 2000)
<i>Crataegus monogyna</i> (Common Hawthorn)	Rosaceae	Fruit	Effective on the cardiovascular and nervous system.	(Nabavi ve ark., 2015) (Konuklugil, 2000)
<i>Panax ginseng</i> (Kore ginsengi)	Araliaceae	Roots	Effective on mastalgia, vaginal kanama and jinekomasti, diuretic dyrenec, Stevens-Johnson Syndrome, psychiatric durus, cerebral arteritis, agranulocytosis, gous symptoms, hipertansion, pneumonia.	(Tompson Coon ve Ernst, 2002) (Konuklugil, 2000)
<i>Allium sativum</i>	Alliaceae	Onion	antihypertensive, yara-iyinizing, antidiabetic, anticancer, antiaterosclerosis, hypolipidic, anemic, antimicrobial, antifungal, immunomodulator, antioxidant, anti-inflammatory, anthelmintic, anticoagulant, fibrinolytic, hepatoprotective activity.	(Londhe ve ark., 2011) (Konuklugil, 2000)
<i>Trigonella foenum-graecum</i> (Cemen grass)	Fabaceae	Seed	Antioxidant, antidiabetic, antilipidemic, anticancer, anti-inflammatory, antibacterial, antifungal, hepatoprotective, nephroprotective, antigastric ulcer and anti-gallstone are effective.	(Yadav ve Baquer, 2014) (Konuklugil, 2000)

<i>Eleutherococcus senticosus</i> , <i>Acanthopanax senticosus</i> (Siberian ginsengi)	Araliaceae	Roots	Anti-inflammatory, anticancer/antitumor, hepatoprotective, immunodulator, anti-ulcer, anti-allergic, anti-irradiation, anti-fatigue, neuralprotective, antioxidant, inhibition of emancipation, hypoglycemic, anti-steatosis, antiviral, antibacterial activity. Effective activity on bone metabolism, inhibiting the production of nitrit.	(Huang ve ark., 2011) (Konuklugil, 2000)
<i>Foeniculum vulgare</i> (Fennel)	Apiaceae	Fruit	Antimateriel, antifungal, antioxidant, antithrombotic, antiinflamatuvar, östrojenik, hepatoprotective, antidiabetic activity.	(Rather ve ark., 2012.) (Konuklugil, 2000)

CONCLUSION

The use and research of medicinal aromatic plants has increased with the developing technology and the tendency to natural products. These plants, which we have used and are using in all areas of our lives, have been the main subject of many studies to meet the needs such as treatment, cosmetics and nutrition. Smell, taste, appearance and reliability due to its use in nutrition have been one of the important issues that increase the orientation to these plants. This article was written because it is thought that it will be useful to know these plants in this ongoing process.

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