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MEDICINAL PLANTS USED IN TRADITIONAL MEDICINE

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Abstract: The study of medicinal plants and their properties is an important area in pharmacology and medicine. Traditional medicine has used plant materials for centuries to treat various diseases. Scientific research confirms the effectiveness of many such plants, making them promising for further study and drug development. Modern pharmacognosy methods, such as chromatographic analysis, molecular biology, and bioinformatics, allow for a deeper investigation of the active compounds in plants and their mechanisms of action on the body. This article reviews the most popular medicinal plants, their pharmacological properties, and the results of scientific research confirming their efficacy.

Keywords: medicinal plants, traditional medicine, phytotherapy, scientific research.

Historical Context

The use of medicinal plants has ancient roots. Even in Ancient Egypt, China, and Greece, there were treatises on herbs and their healing properties. Hippocrates, considered the father of medicine, described over 300 plant species used to treat diseases. In Chinese medicine, the treatise "Shennong Ben Cao Jing" contains descriptions of hundreds of medicinal herbs, many of which are still used today. In medieval Europe, monastic gardens served as repositories of knowledge about phytotherapy, which later formed the basis of modern medicine.

Main Body

Medicinal plants have been used for centuries in the traditional medicine of various cultures worldwide. Some of them have received scientific confirmation of their efficacy and are actively used in modern pharmacology. Below are some of the most well-known plants widely used in traditional treatments.

1. Chamomile (Chamomilla officinalis)

Chamomile is one of the most popular plants used in traditional medicine. Due to its anti-inflammatory, antiseptic, and calming properties, it is used to treat gastrointestinal disorders, skin conditions, and mucous membrane inflammations. In dentistry, chamomile is used for rinsing inflamed gums and oral mucosa.

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Pharmacological properties: anti-inflammatory, antiseptic, antispasmodic, calming. Mechanism of action: The flavonoids and coumarins in chamomile have anti-inflammatory properties by inhibiting the synthesis of inflammatory mediators.

Azulene and chamazulene provide antiseptic effects.

Modern forms: extracts, tinctures, ointments, tablets. Scientific research: A study by the European Medicines Agency (EMA) showed that chamomile extract has significant anti-inflammatory activity due to its high flavonoid and coumarin content. Clinical trials found that chamomile tea reduces irritable bowel syndrome symptoms by 20% compared to a placebo.

2. St. John's Wort (Hypericum perforatum)

St. John's Wort is known for its antiseptic, wound-healing, and antidepressant properties. In traditional medicine, it is used to treat wounds, burns, gastrointestinal disorders, and nervous conditions. It is included in many herbal preparations for treating depression and anxiety.

Pharmacological properties: antidepressant, antiseptic, wound-healing. Mechanism of action: The main active components, hypericin and hyperforin, affect neurotransmitters, increasing serotonin and dopamine levels in the brain. Modern forms: capsules, tinctures, ointments.

Scientific research: Studies conducted in Germany confirmed that St. John's Wort extracts have an antidepressant effect comparable to traditional antidepressants. Clinical trials showed a 50% reduction in depression symptoms in patients taking St. John's Wort-based preparations.

3. Three-part Beggarticks (Bidens tripartita)

This plant is widely used to treat skin conditions, allergic reactions, dermatitis, and eczema. Infusions and decoctions are used for baths, compresses, and poultices. It is also taken internally for gastrointestinal disorders and to improve metabolism.

Pharmacological properties: anti-inflammatory, antihistamine, wound-healing. Mechanism of action: Active compounds like flavonoids and essential oils help block histamine release, reducing allergic reactions.

Modern forms: infusions, decoctions, ointments.

Scientific research: Studies by the Institute of Phytotherapy in Russia demonstrated the plant's strong antihistamine effect. Clinical trials showed that using its extract in complex therapy for allergic dermatitis reduced symptoms in 80% of patients.

4. Calendula (Calendula officinalis)

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Calendula has pronounced antiseptic and anti-inflammatory properties. It is widely used in traditional medicine to treat wounds, burns, skin infections, as well as in gynecology and dentistry. Its extracts are included in ointments, tinctures, and rinses.

Pharmacological properties: antiseptic, anti-inflammatory, wound-healing.
Mechanism of action: Active components like carotenoids and saponins promote tissue regeneration and have strong anti-inflammatory effects.
Modern forms: ointments, tinctures, extracts.
Scientific research: Studies by the University of Bologna showed that calendula ointment accelerates wound healing by 30% compared to traditional treatments. Its antibacterial activity was confirmed against *Staphylococcus aureus* and *Escherichia coli*.

5. Great Plantain (Plantago major)

Plantain leaves have long been used as a wound-healing and anti-inflammatory remedy. Its juice helps with cuts, burns, and insect bites, while infusions are used for gastrointestinal and respiratory conditions. In modern medicine, plantain extracts are included in cough syrups.

Pharmacological properties: wound-healing, anti-inflammatory, antiseptic.
Mechanism of action: Contains glycosides and phenolic compounds that improve respiratory function and have anti-inflammatory properties.

Scientific research: A 2020 clinical study in China confirmed that plantain-based syrup reduces bronchitis symptoms by 40% compared to a control group. The extract also showed strong antioxidant activity.

6. Valerian (Valeriana officinalis)

Valerian is known for its calming and antispasmodic properties. Traditional medicine uses its root to treat nervous disorders, insomnia, and headaches. Its extracts are included in many sedative preparations.

Pharmacological properties: calming, antispasmodic, sedative.

Mechanism of action: Valepotriates and essential oils affect the central nervous system, promoting relaxation and reducing anxiety.

Modern forms: tinctures, capsules, extracts.

Scientific research: Harvard University studies showed that valerian improves sleep quality by 25% and reduces anxiety levels. Clinical trials confirmed its efficacy in treating insomnia and neuroses.

Materials and Research Methods

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This article reviews literature and scientific data on the most common medicinal plants used in traditional medicine, analyzing their pharmacological properties and clinical research results.

Safety and Side Effects

Despite their benefits, medicinal plants require caution. St. John's Wort may interact with antidepressants, reducing their efficacy. Three-part Beggarticks can cause allergic reactions in sensitive individuals. Calendula is contraindicated for those with individual intolerance.

Future Research and Prospects

Modern science is actively studying new methods for standardizing and extracting plant components to enhance their efficacy. Promising directions include developing combined phytopreparations, studying plant effects on the gut microbiome, and researching the adaptogenic properties of medicinal herbs.

Comparison with Traditional Treatment Methods

Phytotherapy offers gentler effects compared to synthetic drugs, reducing the risk of side effects. However, traditional medications remain more effective for acute conditions. A comprehensive approach combining phytotherapy and traditional medicine is essential.

Conclusions

Medicinal plants remain in demand in traditional medicine. Their efficacy is confirmed by centuries of use and scientific research. Further study of plant components and the development of new drug forms based on them hold promise for future medicine.

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