

Sage (*Salvia officinalis*), Known as "Maramia" in Arabic Culture: An Overview and Herbal Monograph

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ABSTRACT

Recent years have seen a global resurgence of interest in herbal medicine due to a desire for natural and holistic approaches to health, increased awareness of the side effects of synthetic drugs and scientific evidence supporting herbal remedies. Herbal medicine has a deep-rooted history and is closely tied to traditional practices and cultural beliefs. Many people rely on herbs and natural remedies to heal and maintain their health. Sage (*Salvia officinalis*), commonly known as "maramia" in Arabic culture, is a herbaceous perennial plant with a distinctive aroma and earthy flavour. It holds significant scientific interest due to its rich phytochemical profile and potential therapeutic applications, warranting further research and exploration of its medicinal properties. This article provides a comprehensive overview and analysis of sage, including its herbal characteristics, habitat harvesting and safety issues contributing to understanding its uses in herbal medicine.

Keywords: Sage, *Salvia officinalis*, Maramia, Herbal medicine.

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INTRODUCTION

In recent decades, the popularity of herbal remedies has experienced an unprecedented surge. The World Health Organization estimates that approximately 80% of the global population uses herbal medicine for various aspects of primary healthcare.^[1] As well, the global prevalence of herbal medicine usage has increased to 88%.^[2]

Herbal medicine has a deep-rooted history and is closely tied to traditional practices and cultural beliefs. Many people rely on herbs and natural remedies to heal and maintain their health. Countries increasingly recognise the value of integrating traditional herbal medicine with modern medical practices.^[3,4] The Food and Drug Authority regulates the production, distribution and labelling of herbal medicines and traditional remedies to ensure their safety, quality and effectiveness and has established guidelines for registering and manufacturing herbal products to safeguard consumers and uphold specific standards.^[2,5]

Herbal medicines and traditional remedies are readily available in Arabic countries and are found in traditional herbal shops, local markets and pharmacies. Moreover, the market for commercially

packaged herbal products and supplements, including capsules, tablets and topical preparations is growing.^[4] Traditional Arabic medicine has a diverse range of medicinal plants used in herbal medicine. Some commonly used herbs include sage (*Salvia officinalis*), myrrh (*Commiphora myrrha*), black seed (*Nigella sativa*) and frankincense (*Boswellia sacra*). These herbs are used for various purposes, such as digestive issues, respiratory conditions, skin ailments and general well-being.^[6,7]

Sage, commonly known as "maramia" in Arabic culture, is characterised by its distinctive aroma, earthy flavour and prominent medicinal properties. Moreover, sage is employed in preparing herbal teas and infusions, which are consumed for their potential therapeutic benefits. Sage is a perennial medicinal plant native to the Mediterranean region, also found in Saudi Arabia and Jordan. It belongs to the Lamiaceae family and is highly valued for its aromatic leaves and therapeutic properties.

Sage has been used for centuries in traditional medicine practices due to its diverse pharmacological properties. It is a valuable medicinal plant found around the world, known for its rich antioxidant content and potential health benefits, including antimicrobial and anti-inflammatory properties.^[8] Overall, sage holds significant scientific interest due to its rich phytochemical profile and potential therapeutic applications, warranting further research and exploration of its medicinal properties. This article offers a thorough review and detailed description of sage, including its herbal characteristics and comprehensive study.



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Habitat and botanical characteristics

In ancient Greece, a sage was someone who had attained wisdom and the herb has long been associated with insight. It was a traditional herbal remedy in ancient Greece and Rome and in Native American and Chinese medicine.^[9] The Romans and Egyptians used to preserve meat using sage. Nicholas Culpeper noticed its benefit to memory as sage prevents the breakdown of acetylcholine, which the brain needs to store memory. Sage was also used for magical purposes associated with purification, cleansing rituals, protection from the evil eye and releasing negative energy.^[10,11]

Sage is native to the Mediterranean region, although it has been naturalised in many places worldwide.^[12] It requires ample sunlight and can commonly be found in areas with shallow, dry and rocky soil, such as the southwestern United States, northwestern Mexico and some countries in the middle east and southwest Asia, such as Saudi Arabia and Jordan.^[13,14] Sage is an aromatic perennial plant with greyish leaves and flowers in various colours (blue to purplish). It is a hardy plant that grows about 12 to 18 inches tall.^[15] Some species have woody stems and grow more like shrubs. Like other Lamiaceae plants, sage has square stems and simple, paired, opposite leaves.^[16]

Harvesting and ecological issues

Studies show the best time to collect sage leaves are before the plant blooms, when they are most fragrant. Sage grows best in mild weather during spring and early fall. Choose a sunny day for harvesting, in the late morning after the dew has evaporated. Avoid areas with pollution to prevent contamination and look for leaves free from discolouration or signs of insects. After harvesting, protect the sage from sunlight, as ultraviolet light can harm it.^[17]

Sage leaves are rich in bioactive compounds, including phenolic acids, flavonoids and essential oils, which contribute to their medicinal value.^[18] Sage is increasingly threatened by a variety of conflicts, including urban development and habitat modification, distorted fire regimes and the establishment of non-native species. The overharvesting of sage endangers the survival of the species, worrying ecologists who predict risk.^[19,20]

Correct identification and best quality

To ensure proper identification and quality, use an illustrated book on plant identification when collecting herbs from natural habitats. In the case of sage, be certain about the identity of a plant and conduct tests to evaluate its quality.^[21] The herb I collected displayed the colour of fresh dried leaves, showed no signs of mould or insect infestation and was neatly cut. Its aroma was fresh, sweet and reminiscent of freshly cut grass, without any unpleasant musty scent.^[18,22] It had a smooth, velvety texture and did not disintegrate into dust. Based on these observations, I concluded that the herb was of high quality.^[23]

Sage is renowned for its strong, distinctive aroma. The essential oils present in sage give it a fragrant, earthy scent. It typically grows up to about two feet (60 cm) in height and has woody stems covered with grey-green leaves. The leaves are oblong, slightly fuzzy and have a strong fragrance.^[24] The most commonly used parts of this plant are the leaves and the flowers. While rosmarinic acid is more present in the leaves, chemical compounds like flavonoids, terpenoids and essential oils are more present in the flower.^[14,25]

Dry herbs immediately after gathering them. For drying, sage can be hung in clusters and placed on drying racks in a well-ventilated space.^[26] The ideal drying location should have a temperature ranging from 25°C to 30°C (77°F to 86°F) with low humidity and some airflow. Most herbs will fully dry within three to seven days under these conditions.^[27] While air circulation aids in the drying process, direct heat can cook herbs. The aim is to dry the sage until it reaches a moisture content of 10%, which is like atmospheric levels. Once dried, the leaves should turn brittle but not crumble into powder.^[28]

Main therapeutic uses and dosage options

Scientific studies have demonstrated that sage possesses a wide range of biological activities, including antioxidant, antimicrobial, anti-inflammatory, antidiabetic and antiaging (protects the body against oxidative stress and free radical damage) effects.^[24]

The high antioxidant content of sage helps in scavenging free radicals and reducing oxidative stress, thereby protecting against various chronic diseases. Moreover, sage has shown promising antimicrobial activity against a broad spectrum of pathogenic microorganisms, suggesting its potential application in the treatment of infectious diseases.^[29,30]

Additionally, the anti-inflammatory properties of sage have been attributed to its ability to inhibit inflammatory mediators and enzymes, thereby mitigating inflammation-related disorders. Sage leaves are recommended for relieving inflammation and infection of both the mouth and the throat, such as gingivitis and sore throats.^[31] Furthermore, sage has exhibited antidiabetic effects by regulating blood glucose levels and improving insulin sensitivity. Tea infusions of sage have proven to be as effective as metformin (an oral antidiabetic drug) by reducing liver glucose production and increasing the action of insulin in type 2 diabetes mellitus.^[32]

Sage promotes angiogenesis (the formation of new blood vessels) and has ulcer-healing properties that can be useful in treating gastritis and inflammatory bowel diseases.^[33] Furthermore, it can boost 'head and brain' functions, improve memory, sharpen the senses and delay age-associated cognitive decline. It can also help to relieve nervous exhaustion, nervous tension and headaches.^[34] The rosmarinic acid in sage leaves has shown neuroprotective, antioxidative and anti-apoptotic effects. Hence, it can be used as a therapeutic agent in the treatment of Alzheimer's.^[35] Drinking

sage tea (as a leaf extract) lowers blood levels of triglyceride, total cholesterol, low-density lipoproteins and very low-density lipoproteins.^[36,37]

Moreover, sage leaves can be brewed into a herbal tea or infusion. Sage tea is known for its calming, relaxing properties and is often used to promote digestion and relieve menstrual discomfort. Excessive consumption of sage tea or supplements should be avoided, particularly during pregnancy or if the patient has certain medical conditions.^[38] Sage can be taken as a tincture of 1/8 to 1/2 teaspoon of dried sage leaves in a sip of water twice daily. Several cups of sage tea can be drunk as needed. As a topical cream, 23 mg/d of sage extract and rhubarb extract can be applied every 2-4 hr for 10 to 14 days.^[39,40]

Potential adverse effects and safety issues

Sage is generally considered safe when used in appropriate amounts and for short durations. However, like any medicinal herb, it can have adverse effects on specific individuals. Allergic reactions are one adverse effect that may occur after exposure to sage.^[24,41] These reactions can manifest as skin rashes, itching, swelling, or difficulty breathing. Individuals known to have allergies or sensitivities to herbs must exercise caution when using sage.^[42]

In addition, consuming large amounts of sage or using it for extended periods may lead to digestive issues. Some individuals may experience stomach upset, diarrhoea, or abdominal pain. Use sage in moderation and discontinue use if digestive discomforts arise. Sage contains compounds that can influence hormone levels.^[43] This means it can cause changes in women's menstrual cycles and may interfere with hormonal medications or treatments. Women who are using hormonal medications or undergoing hormone-related therapies should consult with a healthcare professional before incorporating sage into their routine.^[44] Furthermore, sage has been reported to have mild sedative effects on the central nervous system. While this can be beneficial for individuals seeking relaxation or relief from anxiety, it may cause drowsiness or dizziness, mainly when used excessively.^[41,45] People who need to remain alert and focused should exercise caution when using sage.

Drug herb interaction

The interactions between sage and drugs have been the subject of scientific investigation. Sage contains various bioactive compounds, including volatile oils and phenolic compounds, which may interact with certain medications. For instance, sage has been found to inhibit the cytochrome P450 enzymes, particularly CYP3A4 and CYP2D6, which are responsible for the metabolism of numerous drugs.^[30,46] This inhibition can lead to altered drug concentrations in the body, potentially resulting in either reduced efficacy or increased toxicity of co-administered medications.^[18]

Sage is also known as an aromatic plant, which means it contains a significant amount of essential oil (0.7-5.2%).^[47]

Sage essential oil has high thujone levels. Consumption of sage essential oil in single-ingredient products might exceed the maximum recommended daily intake of thujone, which can be toxic and cause seizures in high doses.^[48] In addition to thujone, sage oil contains well-known convulsant substances such as camphor and cineole in different proportions. Case reports mention a newborn and a toddler who experienced generalised tonic-clonic seizures after accidental exposure to sage oil.^[49] Sage has mild sedative properties and may interact with medications or substances that also have sedative effects, such as benzodiazepines, barbiturates, some antidepressants and alcohol. Combining these substances with sage may increase the risk of excessive sedation or drowsiness.^[50,51]

Due to its coumarin content, sage contains compounds with mild anti-coagulant properties, which could potentiate the anticoagulant effects and increase the risk of bleeding. If patients are taking medications such as warfarin (Coumadin), aspirin, or other antiplatelet drugs, using sage supplements or consuming large amounts of sage may increase the risk of bleeding.^[52,53]

Furthermore, individuals taking medications for diabetes should exercise caution when using sage, as it may have hypoglycaemic effects and could potentiate the blood sugar-lowering effects of antidiabetic drugs.^[24] Studies have shown that sage has hypoglycaemic effects. If patients are taking medications for diabetes, such as insulin or oral hypoglycaemic drugs, using sage supplements or consuming large amounts of sage may enhance the effects of these medications, leading to low blood sugar levels.^[24,54] Sage has been reported to have weak oestrogenic effects. If patients are using hormone replacement therapy or other medications that contain oestrogen, sage supplements or high amounts of sage could interfere with the effects of these medications.^[43]

Considering the potential adverse effects and interactions of sage, consultation with a healthcare professional before use is essential, particularly if the patient has underlying health conditions or is taking medications. A healthcare professional can provide personalised advice and assistance based on the patient's circumstances, considering medical history, current medications and individual sensitivities. This will help ensure patient safety and well-being when incorporating sage into the healthcare regimen.

CONCLUSION

Global interest in herbal medicine has surged as people embrace natural health approaches and recognize the limitations of synthetic drugs supported by scientific evidence. Sage, a fragrant herb, has garnered attention for its diverse plant compounds and potential therapeutic applications, warranting further research.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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