

Pharmacological Importance of Sage and Oregano

Nida Tabassum Khan^{1,*}

¹Department of Biotechnology, Faculty of Life Sciences and Informatics, Balochistan University of Information Technology Engineering and Management Sciences, (BUIITEMS), Quetta, Pakistan

Abstract

Sage and Oregano, both are well-known culinary herbs with potential medicinal uses. Sage is mostly used to cease wounds bleeding, treating sores, swelling, cough and ulcers back in the first century and was called as the fertility drug since it reduces excessive bleeding during menstruation. On the other hand Oregano was found to be effective in treating stomach discomforts, bacterial/fungal infection, inflammatory bowel disease etc. Therefore due to their therapeutic and native applications, Sage and Oregano is of high economic worth.

Corresponding author: Nida Tabassum Khan, Department of Biotechnology, Faculty of Life Sciences and Informatics, Balochistan University of Information Technology Engineering and Management Sciences, (BUIITEMS), Quetta, Pakistan. Email: nidatabassumkhan@yahoo.com

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Introduction

Sage is a herbaceous perennial herb belonging to the mint family that is enriched in essential antioxidants and is scientifically known as *Salvia officinalis* [1]. Besides being used in culinary due to its spicy aroma it is reported to possess antimicrobial potential against numerous gram positive/negative bacteria i.e. commonly food born pathogens [2,3].

Bioactive Compounds in Sages Extract

Sage extract is reported to contain high percentage of volatile oils and other vital phenolic compounds which is responsible for its strong aroma and flavor [4]. The following enlisted bioactive constituents are abundant in its extract: Low molecular weight sesquiterpenes and monoterpenes, oleanolic acid, triterpenoids, ursolic acid, α/β thujone, rosmarenic acid, camphor, α/β -pinene, cineole, borneol, chlorogenic acid, phenyl propanoid, shikimate, mevalonate, carnosic acid, methyl rosmarelate, cinnamic acid, caffeic acid, salvianolic acids, quinic acid, quercetin, ferulic acid, luteolin, apigenin, etc [5, 6, 7, 8].

Health Benefits of Sage

The following are some therapeutic applications of Sage:

- **Anti-Inflammatory:** Rosmarinic acid in Sage is responsible for its anti-inflammatory property and is used in the preparation of medicines to reduce mouth/throat inflammation such as gingivitis and pharyngitis [9].
- **Anti-Microbial:** Sage herb extract is reported to possess antibacterial and antifungal activity against *S.aureus*, *E. coli*, *Salmonella* species etc [10] and *C. albicans* respectively [11]. Additionally, Sage is also effective in treating infections of throat, dental problems such as bleeding gums, mouth ulcers etc and infantile diarrhea [12].
- **Relaxant:** Research suggested that Sage herb is useful in curing nervous excitement and dizziness [13]. Besides it has an anti-spasmodic action which reduces muscle tension and aid in removing mucous congestion in the respiratory tracts [14,15].
- **Stimulant:** Sage extract stimulates digestion by enhancing intestinal/pancreatic secretions, and bile

flow [16].

- **Moderates Menopause:** Sage leaf extract is reported to reduce excessive sweating, symptoms of dysmenorrhea, amenorrhoea and breast-milk production [17].
- **Enhances Memory:** Sage is documented to improve neural function by inhibiting the acetylcholinesterase activity and is reported to be under investigation for the treatment of Alzheimer's disease [18].
- **Anti-Oxidant:** Research suggested that sage extract is enriched in compounds namely carnosol, rosmarinic acid, methyl carnosate, caffeic acid and carnosic acid that contributes towards its radical-scavenging properties and also offers hepatic protection [19].
- **Anti-Diabetic:** This herb is claimed to be anti-diabetic because it elevates hepatocyte sensitivity to insulin and inhibits gluconeogenesis thus producing hypoglycaemic effects in diabetic individuals [20].
- **Anti-Tumour:** Sage possess anti-proliferative activity in cancer cell lines of human and is considered as an antitumor agent [21]. In addition it showed cytotoxic activity on human prostate carcinoma cells [22]. Thus it is used in treating cancers and tumours in humans.
- **Other Uses:** Sage or its extract are employed in the preparation of toothpastes, hair shampoos and preservatives [23].

Oregano is scientifically known as *Origanum vulgare* and commonly called as marjoram, it is native to northern Europe and has been used for curing numerous ailments [24]. It is a small perennial herb with multi-branched stems covered with small grayish-green oval leaves and small white or pink flowers [25].

Health Benefits of Oregano

The following are some therapeutic applications of Oregano:

- **Anti-Fungal:** Oregano has been reported to be used in the treatment of chronic candidiasis by inhibiting the growth of *C. albicans* because it possess antifungal properties attributed to the presence of thymol and carvacol compounds [26].

- *Anti-Bacterial:* Oregano is extremely effective against bacteria including *E. coli*, *P. aeruginosa*, *S. enterica* and *S. aureus* [27]. In addition it also effective against amoeba *G. lamblia* [28].
- *Anti-Oxidant:* Due to the presence of compounds like rosmarinic acid and thymol, oregano extracts has the potential to prevent cell damage that is caused by the generation of free radicals [29].
- *Source of Nutrition:* Oregano is an enriched source of essential nutrients such as fiber, manganese, calcium, iron and vitamin K/A/C [30].
- *Promotes Digestion:* Oregano promotes regular digestion, reduces heartburn, and lowers stomach acidity [31].
- *Anti-Inflammatory:* Oregano extracts is used in the treatment of inflammatory bowel disease [32].

Side Effects of Sage and Oregano Excess Use

The following are some side effects observed in individuals using these above mentioned herbs in excess:

- Allergic reactions in individuals who have allergies to herbs belonging to family *Lamiaceae* [33].
- Sage or Oregano extracts should not be taken in excess during pregnancy since both of these herbs increase the risk of bleeding and may lead to miscarriage [34]
- Stomach upset, intestinal tract discomfort, skin irritation and burning sensation are some common side effects reported when these herbs or its extracts are consumed in excess [35].

Conclusion

Thus both the herbs Oregano and Sage besides being used in culinary, possess numerous health benefits such as being anti-fungal, anti-bacterial, anti-inflammatory, relaxant, stimulant and anti-oxidant.

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