

A Brief Review on Rosemary Adaphthogen Having Multiple Benefits

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ABSTRACT

Herbal medicine and natural products are the most valuable bestowals that were given to mankind. Many herbal plants prestigious position in the field of medicine. The medicinal plants has been beneficial effects with less side effects which inspired research in drug discovery and development of new drugs. Nowadays there is an interest in the consumption of food without synthetic additives and use of natural preservative. In this regard natural extract of the Rosemary such as family Lamiaceae. The Indian name for rosemary plant is "Rosemary" the leaf of rosemary.

KEYWORDS: Rosemary, Insomnia, Brain Health, Alopecia, Diabetes

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INTRODUCTION

Herbal Medicines and natural Products were used in ancient therapies ⁽¹⁾. During the last decades, researchers focused more on herbs in the drug discovery because of their limited side effects and fewer complications ⁽²⁾. According to the improving demand, the medicinal and pharmacological studies have been increasing worldwide ⁽³⁾. Medicinal plants have been used worldwide by indigenous populations, playing an important role in the treatment of human and animal disease ⁽⁴⁾. Moreover, only about 10% of 250,000 species of plants estimated worldwide have been scientifically studied with potential use in healthcare⁽⁵⁾.

The rosemary are specific properties as antioxidant, antidiabetic, antimutagenic, antitoxigenic and antibacterial ⁽⁶⁾. Several spice extracts have shown their properties to prevent the autoxidation of unsaturated triacylglycerol's ⁽⁷⁾. Specifically, the natural extract from the Lamiaceae family (thyme, sage and rosemary) has been reported in several studies for its antioxidative activity ⁽⁸⁾.

Rosemary (*Rosmarinus officinalis* L). Has been widely used as traditional remedy for insomnia, depression and anxiety in china and western

countries. Modern pharmacological studies have shown that rosemary has important applications in neurological disorder. Particular, carnosic acid, component of rosemary, is known to have antioxidant and anti-inflammatory qualities ⁽⁹⁾.

History

The first mention of rosemary is found on cuneiform stone tablets as early as 5000 BCE, after which ⁽¹⁰⁾ Egyptians used it for embalming corpses starting in 3500 BCE.

The herb later made its way east to China and was naturalized there as early as 220 CE ⁽¹¹⁾ during the late Han dynasty.

Rosemary, along with holly and ivy, was commonly used for Christmas decorations in the 17th century. Rosemary finally arrived in Americas with early European settlers in the beginning of the 17th century and was soon spread to South America and distributed globally.

Use

The rosemary leaves are used to flavor various foods, such as stuffing and roasted meats ⁽¹²⁾. In order to

harvest from the plant, the bush should be matured 2-3 years to ensure it is large enough to withstand it⁽¹³⁾.

Insomnia

Sleep is essential to health and must be performed for human survival. However, the duration and quality of sleep of most of people are suboptimal, this phenomenon is known as insomnia. Insomnia is major public problem. Insomnia can increase the mortality rate of patients and the incidence of cardiovascular diseases and cancer. Pharmacological treatments include Benzodiazepines and sedative antidepressant and antihistamines and antipsychotics (Neubauer and Flaherty, 2009; Wilson and Argyropoulos, 2005), although effective, they have many side effects including drowsiness, nausea and dizziness. Medicinal plant used for treating depression and insomnia including valerian, chamomile, and rosemary.

Memory learning and Alzheimer disease

Herbal ingredients and nutrients have been studied as a probable developing concern. The one of the important hallmarks of the aging process is oxidative damage⁽¹⁴⁾. The neuronal dysfunction observe in this orders associated with aging such as Alzheimer disease is mainly thought to be from oxidative stress. The free radical are responsible for oxidative stress and aging (15).

The plant extract with antioxidant ingredients might be great help. In this regard a study by Farr et al.2016, investigated the effects of rosemary extract contain 60% or 10% carnosic acid and spearmint extract content 5% rosmarinic acid, antioxidant based components of rosemary for 90 days, on memory and learning in mice the result show the positive effects of these ingredients on memory improvement in a mouse model (16).

Support the brain health

Some test tube and animal study have found the compounds in rosemary tea may protect the health of your brain by preventing death of brain cells.

Diabetes

High blood sugar can damage your eyes, heart, kidney and nervous system. Therefore, it's critical that people who have diabetes properly manage their blood sugar level. The Rosemary tea may lower blood sugar level, suggesting the rosemary could have potential application for managing high blood sugar among people with diabetes.

Some studies show the compounds can increase the absorption of glucose into muscle cell, and lowering blood sugar level. (17)

Anti-inflammatory action

These extract were show to have no anti-inflammatory effect on existing dermatitis, however when applied simultaneously with the irritant, the inflammatory process was reduced. The indicating that they exerted a protective effect against the development of induced dermatitis (18).

Wound Healing

Healing is a complex dynamic process that results in the restoration of the anatomical barriers of the skin that may have been compromise by disease or burn (19)

Alopecia

The alopecia characterized by the loss of sun or all hair and is classified as a chronic dermatological disorder (20).The prevalence of the alopecia has increase owing to stress and diet related factors. The excess testosterone in the blood capillaries is significantly associated with the condition; as such, ant androgenic agents have been reported to reduce hair loss (21)

C57BL/6mice with testosterone induced alopecia were treated topically with hydro alcoholic extracts of rosemary(2mg/day/animal) and shows significant increasing hair growth after the 16th day of treatment and compare with those in the controlled(22). The hydro alcoholic was tested in vitro for the evaluation of 5 α R enzyme activity and show strong inhibition of the binding of Dihydro testosterone (DHT) to its receptor. A vitro assay in human prostate LNCaP cells indicated that 12 Methoxy salcosalic acid had a key role in inhibition of the 5 α R enzyme a DHT/ receptor binding (23).

Antiaging

The aging is skin process that occurs owing to intrinsic and extrinsic factors. The internal and external agents lead to the production of reactive oxygen process (ROS).When ROS levels exceed the cells neutralization capacity, damage to the cell constituents occurs ultimately leading to cell death (24).

R. Officinalis Extract has strong anti-oxidant activity which is mainly attributed to its phenolic compounds. The anti-oxidant activity generally attributed to free radical scavenging, but secondary metabolites may play biological role in the regulation of apoptosis, cell signal transduction and xenobiotic metabolism in the liver (25)

Stimulates Hair growth

One of the most common types of hair loss is androgenic alopecia, better known as male baldness, though it can also effect females (26)

Androgenic alopecia is suspected to be particularly due to a byproduct of testosterone attacking hair follicles.

When male with androgenic alopecia massaged diluted rosemary oil into their scalp twice daily for 6 months, they experience the same increase in hair thickness as those who use Minoxidill (Rogaine) a common hair growth remedy (27)

Side effects of Rosemary

Rosemary is usually safe when taken in low doses, However extremely, large doses can trigger serious side effects is rare.

These side effects are included:

- Vomiting
- Spasms
- Coma
- Pulmonary Edema (fluid in the lungs)

The high doses of rosemary may cause miscarriage; therefore it is not advisable for pregnant women to take any supplemental rosemary.

The majority of study have determined that rosemary is safe to eat and has no harmful effects. However excessive rosemary consumption can cause skin allergy (28). Therefore kindly concern a doctor do not used it to self-medicate.

Rosemary should be avoided with antiplatelets and anti-coagulant drugs because of its antithrombotic properties which may cause bleeding (29).

References

- [1] Li JW, Vederas JC. Drug discovery and natural products: end of an era or an endless frontier? *Science*. 2009;325:161–165. [PubMed] [Google Scholar] [Ref list]
- [2] Boyd A, Bleakley C, Gill C, McDonough S, Hurley DA, Bell P, McVeigh JG, Hannon-Fletcher M. Herbal medicinal products or preparations for neuropathic pain and fibromyalgia. *Cochrane Database Syst Rev*. 2013;5:CD010528. [PMC free article] [PubMed] [Google Scholar] [Ref list]
- [3] Garg G, Adams JD. Treatment of neuropathic pain with plant medicines. *Chin J Integr Med*. 2012;18:565–570. [PubMed] [Google Scholar] [Ref list]
- [4] Batanouny KH, Aboutabl E, Shabana MC, Soliman F. *Wild Medicinal Plants in Egypt: An Inventory to Support Conservation and Sustainable Use*. Academy of Scientific Research & Technology; Cairo, Egypt: 1999.
- [5] Cragg GM, Newman DJ. Drugs from nature: past achievements, future prospects. In: Iwu M, Wootton J, editors. *Ethnomedicine and Drug Discovery*. Elsevier; New York, USA: 2002. pp. 23–37. [Google Scholar] [Ref list]
- [6] Nieto, G.; Huvaere, K.; Skibsted, L.H. Antioxidant activity of rosemary and thyme by-products and synergism with added antioxidant in a liposome system. *Eur. Food Res. Technol*. 2011, 233, 11–18. [Google Scholar] [CrossRef]
- [7] Reblova, Z.; Kudrnova, J.; Trojakova, L.; Pokorny, J. Effect of rosemary extracts on the stabilization of frying oil during deep fat frying. *J. Food Lipids* 1999, 6, 13–23. [Google Scholar] [CrossRef]
- [8] Botsoglou, N.A.; Christaki, E.; Fletouris, D.J.; Florou-Paneri, P.; Spais, A.B. The effect of dietary oregano essential oil on lipid oxidation in raw and cooked chicken during refrigerated storage. *Meat Sci*. 2002, 62, 259–265. [Google Scholar] [CrossRef]
- [9] Ghasemzadeh Rahbardar M, Hosseinzadeh H. Therapeutic effects of rosemary (*Rosmarinus officinalis* L.) and its active constituents on nervous system disorders. *Iranian Journal of Basic Medical Sciences*. 2020;23(9):1100-1112. doi:10.22038/ijbms.2020.45269.10541
- [10] Leafy Medicinal Herbs: Botany, Chemistry, Postharvest Technology and Uses by Dawn Ambrose, 216, 210-11
- [11] Lepine JP, Briley M. The increasing burden of depression. *Neuropsychiatr Dis Treat*. 2011;7:3–7. [PMC free article] [PubMed] [Google Scholar] [Ref list]
- [12] Mahr, Susan. "Rosemary, *Rosmarinus officinalis*". *Wisconsin Horticulture*. Retrieved May 2, 2024.
- [13] Mahr, Susan. "Rosemary, *Rosmarinus officinalis*". *Wisconsin Horticulture*. Retrieved May 2, 2024.
- [14] *Encyclopedia Britannica*. Retrieved 2021-03-19.
- [15] Gemma C, Vila J, Bachstetter A, Bickford BC. *Brain Aging: Models, Methods, and Mechanisms*. Boca Raton, FL: CRC Press; 2007. Oxidative stress and the aging brain: brain from theory to prevention. [PubMed] [Google Scholar] [Ref list]
- [16] Farr SA, Niehoff ML, Ceddia MA, Herrlinger KA, Lewis BJ, Feng S, et al. Effect of botanical

- extracts containing carnosic acid or rosmarinic acid on learning and memory in SAMP8 mice. *Physiol Behav.* 2016;15:328–338. [PubMed] [Google Scholar] [Ref list]
- [17] Sedighi R., Zhao Y., Yerke A., Sang S. Preventive and protective properties of rosemary (*Rosmarinus officinalis* L.) in obesity and diabetes mellitus of metabolic disorders: A brief review. *Curr. Opin. Food Sci.* 2015;2:58–70. doi: 10.1016/j.cofs.2015.02.002. [CrossRef] [Google Scholar]
- [18] Fuchs, M.; Turchiuli, C.; Bohin, M.; Cuvelier, M.E.; Ordonnaud, C.; Peyrat-Maillard, M.N.; Dumoulin, E. Encapsulation of oil in powder using spray drying and fluidised bed agglomeration. *J. Food Eng.* 2006, 75, 27–35. [Google Scholar] [CrossRef]
- [19] Lazarus, G.S.; Cooper, D.M.; Knighton, D.R.; Margolis, D.J.; Pecoraro, R.E.; Rodeheaver, G.; Robson, M.C. Definitions and Guidelines for Assessment of Wounds and Evaluation of Healing. *JAMA Dermatol.* 1994, 130, 489–493. [Google Scholar] [CrossRef] [Green Version]
- [20] Hunt, N.; McHale, S. The psychological impact of alopecia. *BMJ* 2005, 331, 951–953. [Google Scholar] [CrossRef] [Green Version]
- [21] Arck, P.C.; Slominski, A.; Theoharides, T.C.; Peters, E.M.J.; Paus, R. Neuroimmunology of Stress: Skin Takes Center Stage. *J. Investig. Dermatol.* 2006, 126, 1697–1704. [Google Scholar] [CrossRef] [Green Version]
- [22] Stojiljković, D.; Pavlović, D.; Arsić, I. Oxidative Stress, Skin Aging and Antioxidant Therapy/Oksidacioni Stres, Starenje Kože I Antioksidaciona Terapija. *Acta Fac. Med. Naissensis* 2014, 31, 207. [Google Scholar] [CrossRef] [Green Version]
- [23] Amoretti A, Laydner H, Bergfeld W. Androgenetic alopecia and risk of prostate cancer: a systematic review and meta-analysis. *J Am Acad Dermatol.* 2013 Jun;68(6):937-43. doi: 10.1016/j.jaad.2012.11.034. Epub 2013 Feb 8.
- [24] I Liochev, S. Reflections on the Theories of Aging, of Oxidative Stress, and of Science in General. Is It Time to Abandon the Free Radical (Oxidative Stress) Theory of Aging? *Antioxid. Redox Signal.* 2014, 23. [Google Scholar] [CrossRef]
- [25] Lamaison, J.L.; Petitjean-Freytet, C.; Carnat, A. Medicinal Lamiaceae with antioxidant properties, a potential source of rosmarinic acid. *Pharm. Acta Helv.* 1991, 66, 185–188. [Google Scholar] [PubMed]
- [26] Murata, K.; Noguchi, K.; Kondo, M.; Onishi, M.; Watanabe, N.; Okamura, K.; Matsuda, H. Promotion of Hair Growth by Rosmarinus officinalis Leaf Extract. *Phytother. Res.* 2013, 27, 212–217. [Google Scholar] [CrossRef]
- [27] Miroddi M, Calapai G, Isola S, et al. *Rosmarinus officinalis* L. as cause of contact dermatitis, Allergologia et Immunopathologia. 2014; 42(6): 616-619.
- [28] Borges RS, Ortiz BL, Pereira AC, et al. *Rosmarinus officinalis* essential oil: A review of its phytochemistry, anti-inflammatory activity, and mechanisms of action involved. *J Ethnopharmacol.* 2019; 229: 29-45.
- [29] Igarashi T. Physical and psychologic effects of aromatherapy inhalation on pregnant women: a randomized controlled trial. *J Altern Complement Med.* 2013.;19(10):805-10.