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A Systematic Review on Therapeutic & Cosmetic Uses of Rosemary Plant

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Abstract: *Rosmarinus officinalis L. (rosemary) is a medicinal plant native to the Mediterranean region and cultivated around the world. Besides the therapeutic purpose, it is commonly used as a condiment and food preservative. R. officinalis L. is constituted by bioactive molecules, the phytocompounds, responsible for implement several pharmacological activities, such as anti-inflammatory, antioxidant, antimicrobial, antiproliferative, antitumor and protective, inhibitory and attenuating activities. Thus, in vivo and in vitro studies were presented in this Review, approaching the therapeutic and prophylactic effects of R. officinalis L. on some physiological disorders caused by biochemical, chemical or biological agents. In this way, methodology, mechanisms, results, and conclusions were described. The main objective of this study was showing that plant products could be equivalent to the available medicines. cultivated around the world. Besides the therapeutic purpose, it is commonly used as a condiment and food preservative. R. officinalis L. is constituted by bioactive molecules, the phytocompounds, responsible for implement several pharmacological activities, such as anti-inflammatory, antioxidant, antimicrobial, antiproliferative, antitumor and protective, inhibitory and attenuating activities. Thus, in vivo and in vitro studies were presented in this Review, approaching the therapeutic and prophylactic effects of R. officinalis L. on some physiological disorders caused by biochemical, chemical or biological agents. In this way, methodology, mechanisms, results, and conclusions were described. The main objective of this study was showing that plant products could be equivalent to the available medicines.*
Several phytocompounds presenting pharmacological activities may be isolated from essential oils and extracts of R. officinalis L. (Fig. 1), varying the concentration of these molecules in each specimen of the plant. The phytocompounds most reported include caffeic acid, carnosic acid, chlorogenic acid, monomeric acid, oleanolic acid, rosmarinic acid, ursolic acid, alpha-pinene, camphor, carnosol, eucalyptol,rosa quinones A and B, seco hinokio, and derivatives of eugenol and luteolin [5,6,7,8]. Pharmacological effects of phytocompounds from R. officinalis..

Keywords: Rosmarinus officinalis

I. INTRODUCTION

Herbal medicines and natural products were used in ancient therapies. During the last decades, researchers focused more on herbs in drug discovery because of their limited side effects and fewer complications. According to the improving demand, the medicinal and pharmacological studies have been increasing worldwide. Demand for plants rich in valuable secondary metabolites is increasing day by day. One of these herbs is rosemary. Rosemary (Rosmarinus officinalis L.) is a valuable essential oil and spice plant from the Lamiaceae family. According to the evidence found by anthropologists and archaeologists, rosemary, which was used in medicine, food, and cosmetics. Today, rosemary is grown worldwide but it is an evergreen perennial shrub native to southern Europe and Asia, especially the Mediterranean region. Recently, noticeable scientific interest is focused on the beneficial therapeutic properties of different kinds of rosemary extracts and its main constituents Rosemary is an evergreen plant with a developed root and stem system and a lot of branching.

These branches frequently have needle-shaped and bright green leaves with very short stems, each about 3 cm long. There are glandular hairs that carry plenty of essential oil on the lower surface of the leaves. This plant, which has blue flowers towards the ends of the stem, has round, slippery and dark coloured fruits. The economically utilized parts of

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the rosemary plant are its leaves and flowers, and its leaves contain 0.3-2.5% essential oil. The most important essential oil components in rosemary plants are 1.8-cineole (15-30%), camphor (5- 25%), and borneol (10-20%). These essential oils obtained from rosemary are especially valuable in perfumes, cosmetics and aromatherapy. Rosemary juice also has an antiseptic effect and accelerates blood circulation in the skin. For this reason, fresh or dried leaves of rosemary are also added to dishes to give flavour and taste. A large number of studies either on animal models or cultured cells indicate the wide range medicinal properties of rosemary and its compounds such as anti-inflammatory (8, 9), antioxidant, antinociceptive, neuroprotective, antidepressant, anti-hysteric, ameliorative of memory and mental fatigue.

Moreover, the safety of rosemary has been displayed in various studies. Taking this background into account, we present a review of Rosmarinus officinalis from a therapeutic & cosmetic perspective, comprising the following sections: The history of the plant from an ethnomedicinal and cosmetic point of view, its botanical aspects, its ecological aspects, including comments on Mediterranean aromatic plants, its phytochemistry or secondary metabolites as well as their biological activity, and the applications of the plant in cosmetic

Rosemary (Rosmarinus officinalis) is an aromatic, perennial herb native to the Mediterranean region, where it has been cultivated for centuries for its culinary, medicinal, and cultural importance. Known for its distinctive pine-like scent and needle-shaped leaves, rosemary has long been valued for its flavor, fragrance, and therapeutic effects. Historically, it played a significant role in the traditions of ancient civilizations, including the Egyptians, Greeks, and Romans, who appreciated its diverse uses and symbolic meaning.

The plant contains a range of bioactive compounds, such as essential oils, flavonoids, and phenolic acids, which have been shown to exhibit antioxidant, anti-inflammatory, and antimicrobial properties. These qualities make rosemary an important ingredient not only in traditional medicine but also in food preservation and the cosmetics industry. In the culinary world, it is widely used to enhance the flavor of dishes such as roasted meats, vegetables, soups, stews, and herbal teas.

Although rosemary has been used for generations, it continues to be the subject of modern scientific research, with new potential applications being explored in areas such as health, agriculture, and food science. This project aims to investigate [insert your specific focus, such as the medicinal properties, growing techniques, or culinary applications of rosemary], highlighting its relevance and potential across various fields. Through this exploration, the project seeks to deepen understanding of rosemary's benefits and its role in promoting human health,

well-being, and sustainability.

Rosemary (Rosmarinus officinalis) is a highly versatile herb with a wide range of uses, including:Culinary: Commonly used to enhance the flavor of meats, vegetables, soups, and breads.

Medicinal: Traditionally valued for its antioxidant, anti-inflammatory, and antimicrobial properties. Aromatherapy: The essential oil of rosemary is used to support cognitive function, enhance memory, and improve mood.

Cosmetic: Frequently included in skincare products due to its antioxidant and anti-inflammatory effects.

Herbal Remedies: Employed to aid digestion, reduce stress, and promote healthy circulation. These uses can be grouped into three main categories:

Food and Beverages: Culinary applications.

Health and Wellness: Medicinal and therapeutic uses.

Personal Care: Aromatherapy and cosmetic products.

Fig.01: Rosemary Flower

Taxonomic Classification of Rosemary (Rosmarinus officinalis): Taxonomical Classification:

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1. Kingdom: Plantae
2. Order: Lamiales
3. Family: Lamiaceae
4. Genus: Salvia
5. Species: S. rosmarinus

● Kingdom: Plantae
Rosemary is a member of the plant kingdom, which includes all types of plants.

● Division: Magnoliophyta
It belongs to the group of flowering plants, also known as angiosperms.

● Class: Magnoliopsida
As a dicotyledon, rosemary has two seed leaves (cotyledons), leaves with a branching vein pattern, and flowers typically arranged in groups of four or five.

● Order: Lamiales
This order includes plants that often share similar floral structures, such as those in the mint family and related groups.

● Family: Lamiaceae
Rosemary is part of the mint family, which is known for square stems, pairs of opposite leaves, aromatic properties, and flowers that are usually bilaterally symmetrical.

● Genus: Rosmarinus
This genus comprises rosemary and a few closely related species that share similar botanical features.

● Species: Rosmarinus officinalis
This is the specific species name for rosemary, recognized by its narrow, needle-like leaves, blue flowers, and strong aromatic scent and flavor.

Rosemary Plant Details:
-Common Name: Rosemary
-Hindi Name: Gulmehandi
-Biological Name: Rosmarinus officinalis
- Family:Lamiaceae (Mint family)
- Common Name: Rosemary
- Native:Mediterranean region

Rosemary Plant Characteristics:
- Evergreen shrub
- Needle-like leaves
- Blue flowers
- Pine-like fragrance
- Culinary and medicinal uses

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Fig.02: Rosemary Oil

Observation Table:

OBSERVATION	DISCRETION	RESULT/EFFECTt
Growth Rate	Measure plant height, leaf density	Determines plant health and vigor
Aroma	Intensity and fragrance of rosemary scent	Affects culinary and aromatherapy uses
Leaf colour	Green, yellow, or brown	Indicates plant health and nutrient status
Flower production	Presence of pests/diseases	Impacts pollination and seed production
Pest/Disease Resistance	Presence of pests/diseases	plant response Determines plant resilience and need for protection
Culinary use	Flavor, aroma, and texture in dishes	Evaluates plant's culinary value
Medicinal properties	Antioxidant, anti-inflammatory effects	Determines plant's potential health benefits
Essential oil	Quantity and quality of essential oil	Impacts commercial and therapeutic applications

METHODOLOGY:

The data were gathered by searching the English articles in PubMed, Scopus, Google Scholar, and Web of Science. The keywords used as search terms were ‘Rosmarinus officinalis,’ ‘rosemary,’ All kinds of related articles, abstracts and books were included. No time limitation was considered in this review. Both in vitro and in vivo studies were subjected to this investigation.

Culinary Methodology:

1. Harvesting: Fresh rosemary leaves can be harvested from the plant as needed.
2. Drying: Rosemary leaves can be dried to preserve them for future use.
3. Infused Oil: Steep fresh or dried rosemary leaves in olive oil to create a flavorful oil for cooking.
4. Herbal Tea: Steep dried rosemary leaves in hot water to make a soothing tea.

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Medicinal Methodology:
1. Essential Oil Extraction: Steam distillation of rosemary leaves to extract essential oil.
2. Infused Oil or Salve: Mix rosemary essential oil with carrier oil for topical application.
3. Tea or Decoction: Consume rosemary tea for digestive or cognitive benefits.

Aromatherapy Methodology:
1. Diffusion: Add rosemary essential oil to a diffuser to promote cognitive enhancement and mood improvement.
2. Inhalation: Inhale rosemary essential oil directly from a cloth or handkerchief.

Cosmetic Methodology:
1. Skincare Products: Add rosemary essential oil to skincare products for antioxidant and anti-inflammatory benefits.
2. Hair Care: Use rosemary essential oil in hair care products to promote hair growth and reduce dandruff.

Precautions and Safety Measures:
1. Consult a Healthcare Professional: Before using rosemary for medicinal purposes.
2. Dilute Essential Oil: With carrier oil for topical application.
3. Pregnant or Breastfeeding Women:Consult a healthcare professional before using rosemary.

THERAPEUTIC PARAMETERS

Antioxidant Activity: Medicinal plants contain valuable essential oils with antibacterial, antimicrobial, and antioxidant effects. Antioxidants are important to our daily life to reduce detrimental effects to reactive oxygen species, which can appear to result from exercise or rhythm of life. Antioxidant refers to a substance
that inhibits oxidation, especially one used to counteract the deterioration of stored products. Thus, it is important to understand the emergence of antioxidant activity as a result of some beneficial plants. Rosemary is a type of plant that has antioxidant activity to protect cells from detrimental free radicals. As previously reported, the antioxidant effect of rosemary is due to the polyphenols present in the leaves (mainly rosmarinic acid, carnosol and carnosic acid), which accumulate in the fatty membranes of cells where the antioxidant effect is required.

Antibacterial-Antimicrobial-Antifungal Activity : In recent years, the use of medicinal aromatic plants has increased significantly in the food, pharmaceutical, and agricultural industries as medicinal-Aromatic plants have acquired antifungal, antibacterial and antioxidant properties because of their secondary metabolites. Rosemary extracts have been reported to exhibit strong antibacterial properties due to their chemical composition. Many studies have
been conducted with extracts extracted from various plants to determine antimicrobial activity. In one of the types of research study it was found that 3.125 and 1.5 mg/mL dose of rosemary extract was effective on B. subtilis and S. aureus gram positive bacteria. In a study conducted, it was shown that the oil-based formulations of rosemary have highly effective antimicrobial properties Increasing health problems due to various pathologies such as various cancers, liver diseases, and hormonal disorders caused by chemical residues in agricultural products brought the use of essential oils to the agenda for the development of natural
and environmentally-friendly alternative fungicides. Candida albicans is a polymorphic type of fungus that, under certain conditions, can cause infections ranging from skin infections to systemic infections that lead to death.

There are studies showing that the essential oil of rosemary inhibits this type of fungus that causes many diseases in humans. It is reported that essential oil of rosemary has fungus inhibiting properties against Aspergillus niger which is an important disease factor in humans, plants, and animals Therapeutic effects of rosemary constituents on nervous system disorders: Depression is a serious chronic psychiatric disease. Clinical and experimental studies have suggested several alterations occurred in neuronal noradrenergic and serotonergic function in the central nervous system. The antidepressant-like effect of hydro-alcoholic extract of the leaves and stems of rosemary (100 mg/kg, PO) for 14 days was revealed in behavioural tests in mice and it was also shown that its antidepressant-like effect is dependent on its interaction with the noradrenergic (α 1-receptor), dopaminergic (D1 and D2 receptors) and serotonergic

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(5-HT1A, 5-HT2A and 5-HT3 receptors) systems. By these documents, it may be suggested that the antidepressant-like effect of rosemary could be, at least in part, because of carnosol, ursolic acid, betulinic acid and 1,8-cineole, the main compound in the essential oil of rosemary.

Phytocompounds and pharmacological activities:

R. officinalis L., popularly known as rosemary, is a plant belonging to the family Lamiaceae and originated from the Mediterranean region. However, it could be found all over the world. It is a perennial and aromatic plant, shrub-shaped with branches full of leaves, having a height of up to two meters and green leaves that exude a characteristic fragrance. R. officinalis may be used as a spice in cooking, as a natural preservative in the food industry, and as an ornamental and medicinal plant [1,2,3,4].

COSMETIC PARAMETERS :

Fight Acne: With its potent antibacterial qualities, rosemary essential oil helps fight the acne bacteria from getting into your pores. This quality, combined with rosemary oil's
non-comedogenic properties, means that acne has no foothold as the oil both clears out pores and forms a protective barrier against future breakouts. Tighten Skin Tone: Rosemary oil is here
to help shrink the appearance of large pores because it is a natural astringent, which means it helps shrink pores to tighten the appearance of your complexion.

This is great for people with naturally oily skin, as incorporating ingredients like rosemary oil into as many of your skincare products as possible means you multiply these benefits every day for blemish-free skin that looks great. Deodorize Naturally: Another reason rosemary is a popular ingredient in cleansers is that it naturally fights odour. Body odour is caused by benign bacteria living on your skin consuming the nutrients you sweat out and that are found in sebum. As an antibacterial essential oil, rosemary oil prevents these bacteria from thriving and releasing odorous compounds.

Smooth Out Fine Lines: Like many other essential oils, rosemary oil is a natural antioxidant, meaning it protects skin against harmful elements in the environment called free radicals that hurt skin cells' DNA, leading to conditions like fine lines and skin laxity. Whether used topically or ingested in something like tea, rosemary helps prevent many types of premature signs of aging. Remove Under Eye Bags: Rosemary oil has diuretic properties, meaning it helps drive fluid out of tissues where it is applied. This can help with the appearance of under-eye bags that look swollen and puffy by getting rid of fluid retention and easing congestion. Get Rid of Cellulite: Cellulite, which can be caused by the accumulation of toxins in the tissues beneath the skin, can be helped with rosemary oil products. Rosemary oil helps stimulate the flow of the lymphatic system's responsibility of clearing away toxins and waste that harm skin's ability to regenerate and stay healthy.

Uses of rosemary plant:

Herbal medicines and natural products have been widely used in traditional therapies since ancient times. In recent decades, there has been a growing interest in herbs for drug discovery due to their relatively low side effects and minimal complications. As the demand for plants rich in beneficial secondary metabolites increases, one such valuable herb under scientific investigation is Rosmarinus officinalis L., commonly known as rosemary.

Rosemary, a perennial evergreen shrub native to Southern Europe and Asia (particularly the Mediterranean region), belongs to the family Lamiaceae. Archaeological and anthropological evidence shows its historical use in medicine, food, and cosmetics. Today, rosemary is cultivated worldwide for its essential oil and as a culinary spice.

Rosmarinus officinalis L., commonly known as rosemary, is an aromatic, evergreen herb that offers a wide range of benefits for human health. This plant, native to the Mediterranean region, is rich in bioactive compounds that interact with various body systems. Below is a comprehensive overview of how rosemary affects different parts of the human body and its potential uses in promoting health and treating disease.

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Brain and Nervous System

Rosemary is renowned for its nootropic and neuroprotective effects.

Memory and Concentration: Inhalation or oral intake of rosemary has been shown to enhance memory, improve concentration, and increase alertness. This is largely due to its active compound 1,8-cineole, which increases acetylcholine levels in the brain by inhibiting its breakdown.

Neuroprotection:

Compounds like carnosic acid protect neurons from oxidative stress and may help in preventing neurodegenerative diseases such as Alzheimer's and Parkinson's disease.

Mood Regulation: Rosemary exhibits antidepressant and anxiolytic properties, acting on the central nervous system by modulating dopamine and serotonin levels.

Pain Management:

Rosemary has analgesic (pain-relieving) and antinociceptive effects, making it helpful in treating headaches, migraines, and other types of chronic pain.

Digestive System:

Rosemary supports various functions of the digestive system.

Digestive Aid: It stimulates the production of bile and digestive enzymes, which helps break down fats and improves digestion.

Antispasmodic Effect:

It relaxes the smooth muscles of the intestine, relieving symptoms of indigestion, bloating, and irritable bowel syndrome (IBS).

Liver Protection: Rosemary enhances liver detoxification and protects liver cells from damage by reducing lipid peroxidation and inflammation.

Antimicrobial Activity: It inhibits the growth of harmful bacteria like Helicobacter pylori, which is linked to peptic ulcers and gastric cancer.

Respiratory System

Rosemary benefits respiratory health due to its volatile oils.

Decongestant: The essential oil acts as a natural expectorant, helping to clear mucus from the respiratory tract during colds, flu, or bronchitis.

Anti-inflammatory: It reduces inflammation in the airways and is beneficial in conditions like asthma and chronic bronchitis.

Aromatherapy:

Inhalation of rosemary oil can open up nasal passages and improve oxygen intake. Cardiovascular System

Rosemary supports heart health in multiple ways.

Antioxidant Effects:

It reduces oxidative stress on the blood vessels and heart, lowering the risk of atherosclerosis.

Blood Circulation: Rosemary improves blood flow and may reduce blood pressure through vasodilation.

Cholesterol Regulation:

It helps lower LDL (bad) cholesterol and increases HDL (good) cholesterol, reducing the risk of heart disease.

Anti-inflammatory: Its anti-inflammatory properties help prevent chronic inflammation that contributes to heart attacks and strokes.

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Skin and Hair Health:
Rosemary is widely used in dermatology and hair care due to its antioxidant and antimicrobial properties.
Anti-aging: It combats free radical damage, reducing wrinkles and age spots.

Acne Treatment:
Its antibacterial and anti-inflammatory properties make it effective in treating acne and pimples. Skin Tone and Elasticity: Rosemary improves blood circulation to the skin, enhancing complexion and skin firmness.

Hair Growth: Rosemary oil stimulates hair follicles, reduces hair thinning, and treats dandruff and scalp infections.
Cellulite Reduction: It improves lymphatic drainage and reduces fluid retention, helping to minimize the appearance of cellulite.

Immune System
Rosemary boosts immunity in several ways:

Antioxidant Defense:
It contains compounds like rosmarinic acid and carnosol that neutralize harmful free radicals. Antimicrobial Action: It helps the body fight infections by inhibiting bacteria, viruses, and fungi.

Anti-inflammatory Effects:
Rosemary modulates the immune response, helping to control autoimmune conditions and chronic inflammation.

Urinary Tract Infections (UTIs):
Its antimicrobial compounds may assist in preventing and treating mild UTIs Musculoskeletal System.
Anti-inflammatory and Analgesic: Rosemary is effective in relieving muscle pain, joint stiffness, and arthritis symptoms.

Topical Application:
Rosemary oil in massage therapy helps reduce muscle soreness and enhances recovery after physical exertion Reproductive System

Menstrual Relief:
Rosemary can reduce menstrual cramps due to its antispasmodic properties.

Blood Sugar Regulation:
It helps lower blood glucose levels and may be beneficial in managing type 2 diabetes.
Thyroid Support: Some evidence suggests rosemary may help stimulate thyroid activity in cases of hypothyroidism, though more research is needed.

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Hormonal Balance:
Its phytoestrogenic properties can help balance female hormones, especially during menopause
Fig.03: Rosemary Powder

Extraction methods:
The extract of plants can be obtained from roots, stems, leaves, flowers, fruits, seeds, and bark. Therefore, fresh or dried samples can be used. However, according to Vongsak et al. [30], a higher level of flavonoids was detected in dried samples of Moringa oleifera leaves, as compared to fresh samples.

a. Air-drying: a slower drying that can be performed in a range of days, weeks and even months. The process is conducted at room temperature exposing the plant to the atmospheric air. In this way, those unstable chemical compounds to the heat are not damaged.
b. Microwave-drying: the drying time is faster than in the air-drying process due to the electromagnetic radiation. This process promotes collisions between the molecules of the plant, resulting in heating that causes water evaporation from the plant. Thus, many phytocompounds can be denatured and lose their pharmacological effectiveness.

c. Oven-drying: the drying time is also fast by using heat to cause the water evaporation from the plant. Unlike microwave-drying, in this process, the phytochemicals are better preserved.

d. Freeze-drying: a drying performed using sublimation method. The sample is initially frozen (− 80 °C) for 12 h and immediately lyophilized. This method favors the preservation of phytocompounds viability, obtaining higher levels of these molecules than in other drying methods.

Another relevant aspect is the size of the particles that can interfere in the extraction process. Since, the smaller the particle size, the higher the interaction between the plant sample and the solvent to obtain the extract. Thus, powder samples have better contact with the solvent than crushed samples.

During the extraction, the active part of the plant, which contains the functional particles, is obtained, as well as the residual part. The raw extracts are composed of numerous active molecules, such as alkaloids, phenolic compounds, flavonoids, glycosides, and terpenoids. From this initial extract, other types can be obtained by various extraction methods,
The effect of the supplementation with R. officinalis L. leaves was evaluated on cardiac remodeling after myocardial infarction in male Wistar rats [47]. For this, healthy animals and infarcted animals were fed with standard chow or chow containing 0.02% or 0.2% of R. officinalis L. leaves for 90 days.

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SAFETY AND EFFICACY:

Use: Limited clinical studies support traditional uses of rosemary as an antibacterial, anti-inflammatory, and spasmolytic. In addition to the well-established culinary uses of rosemary, potential dermatologic, CNS, and antioxidant applications have also been studied. However, limited clinical data exist to recommend rosemary for any indication.

Dosing: Various rosemary preparations have been used for various indications; however, clinical evidence is lacking to provide dosing recommendations for any indication. Traditional uses include 2 g of chopped leaf infused in water, or 2 to 4 g of the shoot. Other decoctions have been described. Low oral doses (750 mg) of dried rosemary leaf powder were used in a clinical study for improvement of memory speed in elderly patients, while higher doses (6 Impaired memory speed.

Studies evaluating rosemary aromatherapy used 3 to 4 drops for inhalation. Pregnancy / Lactation: Rosemary has generally been recognized as safe (GRAS) status when used as food. Dosages above those found in food should be avoided because safety and efficacy are unproven. Rosemary may have emmenagogic and abortifacient effects.

Adverse Reactions: Dermatitis, allergy, and photosensitivity to rosemary extracts or oil have been reported. Although case reports of seizures due to rosemary are lacking, the potential for toxicity exists, possibly due to the high camphor content found in rosemary oil.

Fig.04: Rosemary Plant

Rosemary Plant Help to Improve Health :

➢ Culinary Uses:

1. Add fresh or dried rosemary leaves to meals for flavor and nutrition.
2. Make rosemary tea by steeping leaves in hot water.
3. Infuse olive oil with rosemary for cooking.

➢ Herbal Remedies:

1. Rosemary essential oil (diluted) for aromatherapy or topical use.

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2. Rosemary supplements (consult a healthcare professional).

➢ Health Benefits:

1. Cognitive improvement and memory enhancement.
2. Anti-inflammatory and antioxidant properties.
3. Digestive aid and relief from headaches.
4. Potential benefits for hair growth and skin health.

➢ Some specific uses include:

1. Rosemary tea for digestive issues or stress relief.
2. Rosemary essential oil (diluted) for massage or hair care.
3. Rosemary-infused oil for cooking or topical application.

➢ Precautions:

-Consult a healthcare professional before using rosemary essential oil or supplements, especially during pregnancy or with certain medical conditions.
-Start with small amounts to monitor tolerance.

II. CONCLUSION:

The present review focuses on the main uses of rosemary. Rosmarinus officinalis (Labiatae) is an ancient plant considered to be medicinal in the European Pharmacopoeia. Through the centuries, it has been used empirically for multiple diseases. In the last few decades, in vitro, in vivo, and human trials have been carried out to establish scientific evidence for the medicinal properties attributed to this plant. Many of its molecules have also been identified thanks to new chemical tools. Some of the chemical components contained in the rosemary plant have many beneficial properties such as anticancer, antidepressant and anti-inflammatory effects.
Soon the harmless applications of rosemary will increase its widespread use in food, agriculture, cosmetics, dentistry, medicine and many more field.
The present review focuses on the main uses of rosemary. Rosmarinus officinalis (Labiatae) is an ancient plant considered to be medicinal in the European Pharmacopoeia. Through the centuries, it has been used empirically for multiple diseases. In the last few decades, in vitro, in vivo, and human trials have been carried out to establish scientific evidence for the medicinal properties attributed to this plant. Many of its molecules have also been identified thanks tonew chemical tools. Some of the chemical components contained in the rosemary plant have many beneficial properties such as anticancer, antidepressant and anti-inflammatory effects. Soon the harmless applications of rosemary will increase its widespread use in food, agriculture, cosmetics, dentistry, medicine and many more fields.

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