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## **Rosemary oil - a remedy for various conditions?**

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## Abstract

**Introduction and Purpose:** The use of rosemary oil has become a new trend in cosmetology and medicine. The purpose of the study is to systematize information on the composition of rosemary oil and its effects on specific health problems.

**Materials and methods:** A literature search was conducted using the medical databases PubMed and Google Scholar. Articles were retrieved in English, employing the key words: “rosemary oil”, “Rosmarinus officinalis”, „rosmarinic acid” and „carnosolin” appropriate configurations.

**Conclusions:** Rosemary oil exhibits a wide range of potential therapeutic and cosmetic applications, making it an extremely versatile and valuable ingredient. Its anti-inflammatory,

antioxidant, antibacterial, antifungal, antiviral and anticancer properties confirm its status as a powerful tool in natural medicine. Nonetheless, in order to fully realize its potential, further clinical and experimental research is needed to thoroughly understand its mechanisms of action and to develop effective and safe therapies. In this way, rosemary oil can gain even wider application and become a key element in the treatment of many diseases and in daily health and beauty care.

**Key words:** rosemary oil, *rosmarinus officinalis*, rosmarinic acid, carnosolin

## **Introduction**

In today's world, where more and more people are seeking natural and holistic methods of healing and taking care of their health, rosemary oil is becoming an increasingly popular option [1]. This aromatic essence, extracted from the leaves of rosemary (*Rosmarinus officinalis* L.), has been known and valued since ancient times. In ancient Rome and Greece, rosemary was used in both religious ceremonies and medicine, and its intense fragrance symbolized the proximity of land for sailors. Now, returning to favor, rosemary oil is being advertised as a versatile agent with a wide range of therapeutic and cosmetic uses. With the growing interest, the question arises: rosemary oil - a new trend or a remedy for various ailments?

### **1. Rosemary and rosemary oil**

Global interest in the use of medicinal plants in modern pharmacology is growing rapidly, a testament to the revival of their role in medicine. These plants, thanks to their ethnopharmacological uses, have inspired modern scientific research into new drugs [1]. In particular, *Rosmarinus officinalis* L. (rosemary) has been the subject of intensive studies aimed at understanding and exploiting its pharmacological properties. Rosemary has traditionally been valued in folk medicine for its medicinal abilities, and current scientific research is focused on analyzing its active constituents, such as carnosic acid, carnosol, rosmarinic acid and essential oil [1]. These compounds exhibit a variety of therapeutic activities, including antioxidant, anti-inflammatory, anticancer and neuroprotective effects. Carnosic acid and carnosol, which are the main diterpenes in rosemary, are potent antioxidants that protect cells from oxidative stress and free radical damage. Rosmarinic acid, on the other hand, has strong anti-inflammatory properties that can be beneficial in treating chronic inflammatory conditions such as arthritis and cardiovascular disease. Rosemary essential oil, rich in 1,8-cyeneol, camphor, pinene and borneol, exhibits antimicrobial activity, making it an effective natural preservative and therapeutic agent [2]. These findings are the result of an extensive literature review that included more than 286 published articles since 1990, from databases such as PubMed, ScienceDirect and Web of Science. These searches focused on terms related to rosemary and its active constituents, providing a comprehensive understanding of the plant's therapeutic potential. Significantly, in addition to understanding the individual components, current research is also focusing on the synergy between the various compounds found in rosemary, which may lead to the development of new, more effective therapies [2]. Rosemary (*Rosmarinus officinalis* L., RO), known for its aromatic and medicinal properties, plays a key role in both traditional medicine and modern

neuroprotection research. On the one hand, rosemary oil, extracted from this plant, is used in aromatherapy for its fresh, herbal scent, which has a relaxing and relaxing effect, improving mood and reducing stress [3]. On the other hand, RO is the subject of intense scientific research due to its potential neuroprotective effects and ability to treat or prevent neurodegenerative diseases such as Alzheimer's disease. Rosemary is an evergreen plant native to the Mediterranean region, known and valued since ancient times. The name “rosmarinus” comes from Latin and means “rosa marinus” - the rose of the sea, which refers to the intense fragrance that indicated proximity to land for ancient sailors. In Poland, rosemary is mainly grown in greenhouse conditions. The plant has a rich history in both medicine and cooking, and its essential oil is widely used in cosmetics and medicine [3].

## **2. Composition of rosemary oil**

Rosemary is rich in biologically active compounds, including essential oil, flavonoids, tannins, diterpenes, triterpenes and phenolic acids, such as rosmarinic acid. Rosemary oil contains a number of constituents, including 1,8-cyeneol, camphor, pinene, borneol and verbenone. The chemical composition of the oil varies depending on the chemotype and the growing and harvesting conditions of the raw material [4]. The main active substances found in rosemary include flavonoids such as luteolin, genquain and diosmethin. These flavonoids are known for their antioxidant properties, which protect cells from free radical damage. Tannins, which make up about 8% of rosemary's composition, exhibit astringent and anti-inflammatory properties, which are beneficial in treating minor wounds and skin inflammation [4]. Phenolic acids, such as rosmarinic acid, caffeic acid and chlorogenic acid, are also present in significant amounts. Rosmarinic acid is particularly valued for its anti-inflammatory and antibacterial effects. Coffee acid and chlorogenic acid further enhance rosemary's antioxidant activity, which contributes to its comprehensive health-promoting properties [5]. Rosemary essential oil contains 1,8-cyeneol (17-50%), borneol (8-20%), camphor (10-25%) and pinene (15-25%), among others. 1,8-Cyeneol is known for its antibacterial and antiviral properties, making rosemary oil an effective natural preservative and therapeutic agent. Camphor, on the other hand, exhibits anti-inflammatory and analgesic effects, which is beneficial in treating muscle and joint pain. Pinene and borneol, present in the oil, further support its antiseptic effect and improve blood circulation, which is beneficial in cosmetics for skin and hair care [5].

## **3. History of rosemary**

The history of rosemary as a medicinal plant dates back to antiquity, where it was valued not only for its health properties, but also symbolically. In ancient Rome, rosemary was used in religious ceremonies as a symbol of fidelity and remembrance. Romans believed that rosemary protected against evil spirits and brought good luck, so it was often used in wedding and funeral ceremonies. They put it in wreaths, wore it as amulets, and used it to decorate places of worship [6]. The Greeks also valued rosemary for its mental properties. They believed that its scent improved memory and concentration, which made it often used by students and philosophers. Greek students wore garlands of rosemary on their heads, believing it would help them study and memorize material. Hippocrates, the father of medicine, recommended rosemary as a means of improving digestion and aiding in the treatment of liver disease [6]. In the Middle Ages, rosemary became a popular ingredient in many herbal medicines. Benedictine saint Hildegard of Bingen, one of the most famous herbalists of the Middle Ages, described its rejuvenating and beautifying properties. She used rosemary in her medicinal preparations, claiming that it “almost makes a man rejuvenated and more beautiful.” Father Sebastian Kneipp, a well-known promoter of natural medicine, also recommended the use of rosemary, writing that “it would be a shame not to have this herb in the medicine cabinet.” Rosemary was also used as a pest control agent, burned in homes and

public places to purify the air [7]. In modern times, rosemary continues to be popular, and its use in medicine and cosmetics has been widely researched and appreciated. Modern research confirms rosemary's numerous medicinal properties. Its antioxidant activity is particularly appreciated, as it protects cells from oxidative stress and free radical damage. Studies have shown that polyphenols in rosemary, such as rosmarinic acid, have strong anti-inflammatory properties, which is beneficial in the treatment of chronic diseases such as arthritis and cardiovascular disease [7]. For years, additionally, rosemary has been used in folk medicine as a means of improving digestion, acting as a hepato-protective, diuretic and as a sedative for the central nervous system. Rosemary extracts inhibit the activity of enzymes associated with the development of Alzheimer's disease, such as acetylcholinesterase and butyrylcholinesterase. Inhibition of these enzymes is important because their increased activity is associated with cognitive decline and the development of Alzheimer's disease. Rosemary exhibits a broad spectrum of biological activities confirmed by in vitro and in vivo studies.

#### **4. Properties of the compounds contained in rosemary**

Among rosemary's most important properties are its antioxidant effects. Rosemary is rich in antioxidants that protect cells from oxidative stress and free radical damage. Free radicals are unstable molecules that can cause cell damage, leading to aging and the development of many chronic diseases such as heart disease and cancer. Antioxidants in rosemary, such as rosmarinic acid, neutralize free radicals, which helps protect cells and tissues [8]. Rosemary also exhibits anti-inflammatory properties. Flavonoids and phenolic acids in rosemary inhibit inflammatory processes in the body, which can be beneficial in treating chronic diseases such as arthritis, cardiovascular disease and other inflammatory conditions. Inflammatory processes are the body's response to damage and infection, but chronic inflammation can lead to the development of many diseases. Rosemary has anti-inflammatory effects by inhibiting the production of pro-inflammatory mediators such as cytokines and prostaglandins [8]. Rosemary oil exhibits antimicrobial activity, making it an effective natural preservative. The antibacterial, antifungal and antiviral effects of rosemary oil make it used to protect foods from spoilage and infection. Studies have shown that rosemary oil's constituents, such as 1,8-cyeneol and camphor, are effective against various pathogens, making it a valuable addition to food and cosmetic products [9]. Rosemary also has potential anticancer effects. Polyphenols in rosemary can prevent cancer development by inducing enzymatic detoxification. Detoxification enzymes, such as glutathione S-transferases, play a key role in neutralizing and removing carcinogens from the body. Rosemary stimulates the activity of these enzymes, which helps protect against the development of cancer. Rosemary's hepato-protective properties are also well documented. Rosemary protects the liver from damage caused by toxins such as alcohol and drugs. Studies have shown that rosemary extracts can reduce levels of liver damage markers, such as aminotransferases, and improve liver function [9]. Rosemary's diuretic effect contributes to increased urinary excretion, which helps remove excess fluid and salt from the body. This is beneficial in the treatment of hypertension and edema, as it helps reduce blood volume and blood pressure. Finally, rosemary has a calming effect on the central nervous system. Its essential oil is used in aromatherapy to relieve stress, anxiety and improve mood. Studies have shown that the scent of rosemary can affect the limbic system in the brain, which is responsible for emotions and memory [10].

##### **5.1 Use of rosemary in cosmetology**

In cosmetics, rosemary oil is valued for its antioxidant and preservative properties, making it a popular ingredient in skin and hair care products. Rosemary oil contains a number of active ingredients, such as 1,8-cyeneol, camphor, borneol and pinene, which exhibit a variety of beneficial effects on skin and hair. Thanks to these properties, rosemary oil is widely used in

cosmetics [10]. One of the most important uses of rosemary oil in cosmetics is in the treatment of acne. Its antibacterial and anti-inflammatory properties help reduce skin inflammation and prevent the growth of bacteria responsible for acne formation. The ingredients in the oil, such as rosmarinic acid, have a soothing effect on the skin, reducing redness and irritation. Regular use of cosmetics with rosemary oil can help improve the condition of acne-prone skin and prevent the recurrence of inflammation [11]. Rosemary oil is also known for its antioxidant properties, which help protect the skin from free radicals and delay skin aging. Free radicals are one of the main causes of premature skin aging, causing cell and collagen damage. The antioxidants in rosemary oil neutralize free radicals, helping to keep skin looking young. Cosmetic products with rosemary oil can help reduce wrinkles, improve skin elasticity and its overall appearance [11]. The preservative properties of rosemary oil make it a valuable ingredient in natural cosmetics. Rosemary oil acts as a natural preservative, preventing spoilage of cosmetic products and prolonging their shelf life. This makes cosmetics containing rosemary oil more durable and safer to use, which is especially important for natural products that do not contain synthetic preservatives [12]. Rosemary oil is also used in hair care. Rosemary oil is gaining popularity not only as a therapeutic agent for nervous system disorders, but also as an effective part of hair and scalp care. Its properties that stimulate blood circulation in the scalp help improve hair condition and stimulate hair growth. Regular use of shampoos and conditioners with rosemary oil can help strengthen hair follicles, reduce hair loss and improve the overall appearance of hair. The anti-dandruff properties of rosemary oil are also an important aspect of its use in hair care. The oil soothes scalp irritation and prevents dandruff due to its antibacterial and antifungal properties. These qualities make products containing rosemary oil especially recommended for people struggling with scalp problems such as dandruff and seborrheic dermatitis [12]. Rosemary oil is also valued for its aromatherapeutic properties. Its fresh, herbal scent has a relaxing and de-stressing effect, which can improve mood and reduce stress. Cosmetics with rosemary oil can be used not only for skin care benefits, but also as part of a relaxing skin care routine. The use of rosemary oil in daily hair care can therefore benefit both physical and emotional health [12]. On social media, especially among so-called “hairfluencers,” or influencers of hair care trends, rosemary oil is gaining popularity. It is worth noting, however, that not all advice given by non-medical influencers is safe and effective. These trends can sometimes lead to unwanted side effects [13]. Dermatologists note that patients often come to clinics after experiencing negative side effects from certain methods promoted on social media. However, scientific studies confirm the effectiveness of rosemary oil in some cases [13]. For example, a study comparing rosemary oil lotion to minoxidil 2% in men with androgenetic alopecia showed a statistically significant increase in hair count in both groups, suggesting that rosemary oil may be an effective treatment for alopecia. Nevertheless, there is much more evidence supporting the efficacy of minoxidil, which means that rosemary oil should be used with caution and under the supervision of a specialist [14]. Other natural treatments for hair growth, such as onion juice, aloe vera and rice water, have also received a lot of attention on social media. However, scientific evidence supporting their effectiveness is limited. For example, the use of onion juice has shown some benefit in studies on patients with alopecia areata, but side effects such as erythema and odor have also been reported [14].

## **5.2 Use of rosemary in neurology and psychiatry**

Contemporary attention is also drawn to the fact that extracts from *Rosmarinus officinalis* L. (RO) are of interest for their broad spectrum of actions, both in the context of neuroprotection and therapeutic for neurological and psychiatric disorders. Preclinical studies have demonstrated their efficacy in alleviating symptoms of depression and anxiety, highlighting the potential for adaptation of these extracts in the treatment of mental illness [15]. Rosemary

contains many active constituents, such as rosmarinic acid, carnosic acid, carnosol and essential oil, which have proven anti-inflammatory, antioxidant and neuroprotective effects. These ingredients can affect neurotransmitters in the brain, such as dopamine and serotonin, which is key in alleviating symptoms of depression and anxiety. Preclinical studies have shown that rosemary extracts can reduce symptoms of depression and anxiety in laboratory animals, paving the way for potential clinical applications [15]. In addition, RO has shown the ability to alleviate various forms of induced amnesia and neurotoxicity in animal models, which translates into promising results in the context of diseases such as Alzheimer's. Rosemary was also effective in combating oxidative stress and cognitive impairment associated with chronic constriction injury, indicating its broad range of neuroprotective effects [16]. Rosemary extracts can protect neurons from oxidative stress-induced damage, which is one of the main mechanisms leading to neurodegeneration in Alzheimer's disease. In the context of clinical trials, currently available data support the efficacy of RO, but at the same time highlight the need for more extensive and controlled studies that include both placebo and treatment groups with approved drugs. This will allow for a more thorough understanding of the mechanisms of action and therapeutic efficacy of rosemary. For example, clinical studies of dietary supplementation with rosemary extracts have shown improved cognitive function in older adults, but further research is needed to confirm these results and understand the long-term effects [16]. A key aspect highlighted by the research is the potential of RO ingredients for the development of new drugs against Alzheimer's disease. Promising properties such as high bioavailability, low toxicity and the ability to penetrate the central nervous system (CNS) are fundamental to creating more effective and safer therapies. Rosmarinic acid and carnosol show the ability to penetrate the blood-brain barrier, which is crucial for effective therapeutic action in neurodegenerative diseases [17]. Consequently, rosemary research may open new avenues in the treatment of neurodegenerative and psychiatric diseases, offering novel approaches that utilize natural plant compounds in modern medicine. Future research can focus on optimizing dosage, studying long-term effects of use, and exploring synergistic effects with other natural substances and drugs. In this way, rosemary could become an integral part of therapy in the treatment of neurological conditions, benefiting patients worldwide [17]. Recently, there has been a noticeable increase in interest in the use of essential oils, including rosemary oil, for therapeutic purposes, especially in the context of treating nervous system disorders. Rosemary oil, thanks to its properties, is particularly promising for the treatment of depression, a condition affecting millions of people worldwide. Studies show that extracts from rosemary leaves and stems have antidepressant properties [18]. In experiments on mice that were administered an aqueous-alcoholic rosemary extract for 14 days, a reduction in depressive symptoms was observed. This effect is linked to the extract's interaction with key neurotransmitter systems, including noradrenergic, dopaminergic and serotonergic [18]. Interest in rosemary is not limited to its effects on depression. Rosemary extract, rich in carnosic acid, is also being studied for its ability to improve cognitive function. In studies on mice, it has been shown to improve memory and learning abilities, which is crucial in the context of an aging population. Rosmarinic acid, by inhibiting prolyl oligopeptidase, helps improve cognitive function, which is particularly beneficial for the elderly. This makes it possible to slow down the degenerative processes that occur in the brain with age, which is particularly important in the prevention of dementia and other neurodegenerative diseases [19]. In addition to its neuroprotective effects, carnosic acid protects neurons from oxidative stress and inflammation, which may be helpful in the treatment of Alzheimer's disease. Alzheimer's disease is one of the most common forms of dementia, characterized by progressive cognitive decline. Carnosic acid, thanks to its antioxidant properties, can counteract oxidative stress, which is one of the main factors

contributing to neuronal degeneration in this disease. In addition, inhaling rosemary oil has shown positive effects on mood and cognitive performance. Studies conducted on healthy volunteers and schoolchildren have shown that exposure to rosemary scent improves cognitive function and lowers cortisol levels, suggesting its potential use as a concentration aid and stress reducer [19]. Rosemary extract is also being studied in the context of epilepsy treatment. Epilepsy, characterized by spontaneous seizures, is a serious neurological condition. Studies have shown that rosemary reduces working and spatial memory deficits and reduces toxicity-induced neuronal degeneration. These properties are linked to its ability to reduce inflammation and antioxidant activity. These mechanisms could be exploited in the treatment of epilepsy, offering new approaches to treating the condition. Essential oils, including rosemary oil, are also being studied for their ability to alleviate symptoms of opioid withdrawal syndrome. Studies have shown that alcoholic and aqueous extracts of rosemary relieve symptoms of morphine withdrawal syndrome, which may be due to interactions with opioid receptors [20]. In clinical trials with opium-dependent patients, rosemary reduced insomnia and musculoskeletal pain, improving sleep quality. These properties may be due to the psychostimulant and anti-inflammatory effects of rosemary. Neuropathic pain, resulting from damage to the nervous system, is difficult to treat. Rosemary extracts exhibit anti-inflammatory and antinociceptive properties, which may be helpful in relieving neuropathic pain. Studies have shown that components such as carnosic acid and rosemary essential oil reduce inflammation and lipid peroxidation, which contributes to pain reduction. Thus, rosemary may be an effective treatment for neuropathic pain by modulating the inflammatory response and oxidative stress [20]. Studies show that rosemary oil exhibits anti-stress and anti-anxiety properties, making it a promising agent for treating these disorders. Inhaling rosemary oil reduces levels of corticosterone, a stress hormone, and increases levels of dopamine in the brain, helping to improve mood and reduce stress. These mechanisms of action suggest that rosemary oil may be useful in the treatment of stress-related mood disorders [21]. Essential oils, including rosemary oil, have long been used in aromatherapy as natural mood enhancers. Clinical and experimental studies have shown that inhaling rosemary oil leads to a reduction in corticosterone levels, which is key to reducing stress [21]. Corticosterone is a hormone produced by the adrenal glands in response to stress, and excess levels can lead to negative health effects such as anxiety, depression and a weakened immune system. Reducing its levels by inhaling rosemary oil can bring significant therapeutic benefits. Increasing dopamine levels in the brain, which also results from inhaling rosemary oil, contributes to improved mood and overall well-being. Dopamine is a neurotransmitter that plays a key role in regulating emotions and motivation. High levels of dopamine are associated with feelings of pleasure and reward, which can counteract the negative effects of stress and anxiety. Thanks to these properties, rosemary oil can be used as a natural treatment aid for mood disorders [21]. Modern research also emphasizes that rosemary oil's effects are not limited to aromatherapeutic effects. Its active ingredients, such as 1,8-cyeneol, camphor and rosmarinic acid, have anti-inflammatory and antioxidant properties, which further enhance its therapeutic effects [22]. Studies have shown that these ingredients can act at the cellular level to protect neurons from oxidative stress damage and inflammation, which are often associated with chronic stress and anxiety disorders. Rosemary oil can also be used in conjunction with other forms of therapy to enhance their effectiveness. For example, an aromatherapy massage using rosemary oil can provide additional benefits by acting as a relaxant and reducing muscle tension. Studies suggest that combining massage techniques with aromatherapy can lead to even greater improvements in mood and reductions in symptoms of anxiety and stress [22]. Thus, rosemary oil can be considered to exhibit a broad spectrum of therapeutic effects that include both mental health and hair care benefits. Its anti-

stress, anti-dandruff and hair growth-stimulating properties make it a valuable ingredient in cosmetics. However, both patients and professionals should be aware of the limitations and possible side effects associated with its use [23]. It is important to rely on scientific evidence and consult with experts to avoid potential risks and maximize the benefits of rosemary oil. In this context, rosemary is not only part of a new trend, but has the potential to become an effective remedy for various conditions [23].

## **Conclusions**

Based on the research and analysis of the available literature, it is clear that rosemary oil is not only a fashionable trend, but also an effective remedy for various diseases. The following are the key arguments that support this thesis. First of all, rosemary oil exhibits a broad spectrum of therapeutic effects. In clinical studies, it has been shown to be effective in reducing symptoms of depression and anxiety. In experiments on mice, rosemary leaf and stem extract significantly reduced symptoms of depression, which was associated with interaction with noradrenergic, dopaminergic and serotonergic systems. Ursolic acid, one of rosemary's main constituents, also showed antidepressant effects by reducing immobility time in behavioral tests, indicating its effectiveness in treating depression [16]. Another area where rosemary oil has shown significant benefits is in improving cognitive function. Rosemary extract, rich in carnosic acid, improves memory and learning abilities, which is particularly important in the context of an aging population. Rosmarinic acid helps improve cognitive function by inhibiting prolyl oligopeptidase, which is particularly beneficial for the elderly [16]. In the context of Alzheimer's disease, the neuroprotective effect of carnosic acid is to protect neurons from oxidative stress and inflammation, which may be helpful in treating the disease. Inhaling rosemary oil has also been shown to have positive effects on mood and cognitive performance, as evidenced in studies conducted on healthy volunteers and schoolchildren [18]. Epilepsy is another area where rosemary has shown therapeutic potential. Studies have shown that rosemary extract reduces working and spatial memory deficits and neuronal degeneration caused by kainic acid toxicity. These properties are related to rosemary's antioxidant and anti-inflammatory effects [18]. In clinical trials with opium-dependent patients, rosemary reduced insomnia and musculoskeletal pain, improving sleep quality. These properties may be due to the psychostimulant and anti-inflammatory effects of rosemary. Neuropathic pain, resulting from damage to the nervous system, is difficult to treat. Rosemary extracts exhibit anti-inflammatory and antinociceptive properties, which may be helpful in relieving neuropathic pain. Studies have shown that components such as carnosic acid and rosemary essential oil reduce inflammation and lipid peroxidation, which contributes to pain reduction [20]. In addition, rosemary oil shows anti-stress and anti-anxiety properties, making it a promising agent for treating these disorders. Inhaling rosemary oil reduces levels of corticosterone, a stress hormone, and increases dopamine levels in the brain, helping to improve mood and reduce stress. Essential oils, including rosemary oil, have long been used in aromatherapy as natural mood enhancers. Clinical and experimental studies have shown that inhaling rosemary oil leads to a reduction in corticosterone levels, which is key to stress reduction [20]. In conclusion, the available scientific evidence confirms that rosemary oil is not only a fashionable trend, but also an effective therapeutic agent for many conditions. Its versatile properties make it a valuable addition in both medicine and cosmetics. Further research on rosemary oil may help to more fully understand its therapeutic potential and lead to new natural treatments. Rosemary oil exhibits anti-inflammatory, analgesic, neuroprotective and anti-stress effects, making it particularly valuable in the treatment of

neurological disorders, neuropathic pain, as well as in improving cognitive function and mental health. In the context of cosmetics, rosemary oil is valued for its properties to stimulate hair growth, soothe dandruff and improve overall skin condition. Its ability to improve blood circulation in the scalp contributes to strengthening hair follicles and reducing hair loss. With its fresh, herbal scent, rosemary oil is also a popular ingredient in aromatherapy, where its relaxing and relaxing properties can help reduce stress and improve mood.

### **Summary**

Rosemary oil has many common uses mainly in cosmetology, but also in many branches of medicine. It exhibits many properties - anti-inflammatory, antimicrobial, analgesic, neuroprotective and anti-stress, hair growth stimulating, soothing. Research on its properties has been carried out for many years and successfully documented.

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Authors do not report any disclosures.

### **Author's contribution**

All authors contributed to the article.

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