

Antioxidant, antimicrobial, and health benefits of nutmeg

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ABSTRACT

Myristica fragrans commonly rich nutmeg is one of the highly prized spices, known since antiquity for its aromatic, aphrodisiac, and curative properties. Nutmeg has many health benefits, studies show that it can help to stop diarrhea (in low dose), detoxify the body, and stimulate the brain, etc., and it has more nutritional effect, rich in energy, dietary fiber and proteins, carbohydrates, and mainly rich in Vitamins A, C, and E. It also contains electrolytes, minerals such as copper, iron, magnesium, manganese, zinc, and phosphorus and phytonutrients include carotene-B and cryptoxanthin B. It contains antioxidant, antimicrobial, and antifungal and having number of ethnopharmacological properties, these are rich in flesh, seed, and mace of nutmeg. Consuming a huge amount of nutmeg can complicate the body because it is a strong spice should use in small quantities. Consuming too much of nutmeg results in sudden attack, irregular heart palpitations, and vomiting. Nutmeg has enormous amount of benefits, but keep the usage of nutmeg should be in control. Nutmeg is a natural product, people and environment can get more safety and is considered to be less of a risk for resistance development by pathogenic microorganisms.

KEY WORDS: Antimicrobial, Antioxidant, Health benefits, Nutmeg, Nutritional effect

INTRODUCTION

Nutmeg is a delicate, slightly sweet spice that is widely used in cuisines around the world. This is the only tree which is the source of two distinct spices in the world, commonly grow in the Caribbean, other tropical areas, and in state of Kerala (southern part of India). The tree is also highly valued due to the essential oils derived from the bark and leaves, nutmeg is also a popular derivative food that gives a healthy punch. The essential oils from nutmeg extract are highly beneficial to health and are frequently used in alternative and herbal medicine.

The health benefits of nutmeg oil can be attributed to its medicinal properties such as its role as a sedative, stimulant, relaxing, anti-inflammatory, antiseptic, antifungal, and antibacterial substance. Nutmeg oil is obtained from the seed of nutmeg fruit ability to treat stress, pain, menstrual cramps, heart disorders, indigestion, blood pressure, cough, and bad breath.^[1] The various extracts and the essential oil of nutmeg seeds have presented strong antimicrobial activity against both Gram-positive and Gram-negative

bacteria and also the variety of fungi. Due to its high antioxidant and antimicrobial activities, nutmeg could be considered as a significant natural source of antioxidants and antimicrobials. The essential oil and various extracts of nutmeg seeds have many pharmacological properties including antioxidant, antimicrobial, insecticidal, antiamebic, and anticarcinogenic activity. These properties have been largely discounted but remain a persistent cause of nutmeg intoxication.^[2]

PROPERTIES OF ANTIOXIDANT AND ANTIMICROBIAL OF NUTMEG

Antioxidant

Our body needs plenty of antioxidants not only treat cancerous cells or free radicles but also to prevent chronic inflammation and oxidative damage.^[3] Experiments have evaluated the antioxidant potential of the oils of nutmeg and mace and their chemical components. Nutmeg has three major antioxidant constituents, i.e., eugenol, isoeugenol, and methoxyeugenol. Phenolic compounds, eugenol and mace lignans are found in nutmeg, are also have antioxidant activity. It also inhibits the nitric oxide production, NO scavenging, and decreased LDL

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oxidation. It has the free radical scavenging capacities of 462 uM BHT and 656 uM alpha-tocopherol, and the latter one was comparable to the inhibitive capacities of 43 uM BHT and 9 uM alpha-tocopherol against the oxidation of beta-carotene and linoleic acid. Antioxidants combined with other nutrients such as copper, potassium, and iron can effectively contribute to chronic diseases such as asthma, Alzheimer, and even depression.^[4]

Antimicrobial

Nutmeg is a powerhouse of antibacterial properties.^[5] Oral diseases are silent yet daunting. In most cases, oral problems go unnoticed because they are not painful and constant ignorance often results in oral cancer. In traditional medical applications, nutmeg was considered the king of spices when it came to oral health. The active antibacterial components present in it fight conditions like halitosis, also known as bad breath. Nutmeg can contribute to treating various oral problems such as cavities, bleeding gums, and toothache. Incorporating into food is said to be effective for oral health. It shows strong antibacterial activity against 25 genera of bacteria.^[6] The resorcinols, malabaricone B, and malabaricone C isolated from mace exhibited strong antimicrobial activities. It is also antiseptic in nature and is effective for toothaches and aching gums.

HEALTH BENEFITS OF NUTMEG

While nutmeg is only a spice that is used sparingly in dishes, it can still impact our health in a variety of ways,^[7] mainly due to nutrient content of vitamins, minerals, and organic compounds related to essential oils. The beneficial components include dietary fiber, manganese, thiamine, Vitamin B6, folate, magnesium, copper, and macelignan and it has benefits such as relieves pain, promotes digestion, improves brain health, detoxifies the body, oral health, treats insomnia and leukemia, hormone imbalance, and skin care, and regulates blood pressure. The woody aroma of nutmeg oil helps to remove bad breath.^[8] Some major benefits such as, it helps to eliminate bad breath, provides relief from insomnia, boost digestive, and bone health, helps to dissolve kidney stone, maintains optimal brain health, reduces skin inflammation and irritation and good for digestion, reduces mood swing and depression, removes toxins from liver, improves cognition, prevents heart problems, and treats respiratory problems

- Nutmeg contains many chemical compounds are known to have been antioxidant, disease preventing, and health-promoting properties.^[9]
- The spicy nut contains fixed oil trimyristin and many essential volatile oils, which gives a sweet aromatic flavor to nutmegs such as myristicin, elemicin, eugenol, and safrole. The other volatile oils are

pinene, camphene, dipentene, cineole, linalool, sabinene, safrole, and terpineol.

- Nutmeg has therapeutic applications in many traditional medicines as antifungal, antidepressant, antioxidant, antibacterial, aphrodisiac, digestive, and carminative functions.^[10]
- Nutmeg is a good source of minerals such as copper, potassium, calcium, manganese, iron, zinc, and magnesium. Potassium is an important component of cell and body fluids that help control heart rate and blood pressure. The human body uses manganese and copper as cofactors for the antioxidant enzyme, superoxide dismutase. Iron is essential for red blood cell production and as a cofactor for cytochrome oxidases enzymes.
- It is also rich in many vital B-complex vitamins; it includes Vitamin C, folic acid, riboflavin, niacin, Vitamin A, and many flavonoids.
- Antioxidants in nutmeg such as beta-carotene and cryptoxanthin that are essential for optimum health.^[11]

NUTRITIONAL BENEFITS

The nutritional benefits of nutmeg are rich in energy, carbohydrates, proteins, and dietary fiber and particularly rich in Vitamin A, C, and E. It is also rich in moisture (14.3%) either extract, fiber, volatile oil, starch, pentosans, furfural, and pectin.^[12] The essential oil of nutmeg is also responsible for the intoxication. The oils are also used for flavoring food product. Vitamin A is in the form of beta-carotene helps boost the immune system and prevents eye problems. Vitamin C is an antioxidant and helps to boost the immune system and fight infections, keep blood vessels healthy. Vitamin E is good for nerve health and helps in wound heal. Iron helps red blood cells carry oxygen to all parts of the body, without proper amount of iron our body feel weak and tired.^[13] Photochemical called phytosterols protect against colon cancer by slowing down the reproduction of cells in the large intestine and it will reduce the inflammation. Hence, the nutmeg possesses various nutritional effects for the good health.

CONCLUSION

Fragrant rich nutmeg is one of the highly prized spices antiquities for its aromatic, aphrodisiac, and curative properties. In earlier days, nutmeg has been used as a remedy for various purposes and to improve health in general. The spice nutmeg has unheard of its medicinal and therapeutic values mostly and it has lot of food values and health benefits. The nutmeg has the potential to fight against the microbial activities. Hence, it has the antioxidant, antimicrobial, and also the anticancer properties. The spice is also used in industrial applications in soap production, cosmetics, and liqueurs numerously.

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