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HEALTH AND NUTRITIONAL BENEFITS OF NUT MEG (*MYSTICA FRAGRANS* HOUTT)

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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. Like other herbs and spices, the assumed health benefits of nutmeg have been used for everything from stomach cramps to a cure for the plague, even so there is evidence that nutmeg does have health benefits. Studies show that it can help lower blood pressure and sooth a stomach ache as well as stop diarrhea and (in low dose) help to detoxify the body, stimulate the brain. Nutritionally, nutmeg is rich in energy, carbohydrates, proteins and dietary fibre. It is particularly rich in vitamins A, C. and E. It also contains electrolytes (Sodium and Potassium) minerals (calcium, copper, iron, magnesium, manganese, zinc and Phosphorus) and phytonutrients including carotene-B and crypo-xanthin B. It is also established that Myristica *fragrans has a lot of industrial applications in* liqueurs, soap production and cosmetics.

Key words: Nutmeg, Food values, Health benefits, Other uses.

INTRODUCTION

Fragrant rich nutmeg commonly called nutmeg, mace, magic, musedier, nuxmoshata, pyritic oil, muskabaum, is one of the highly prized spices, known since antiquity for its aromatic, aphrodisiac, and curative properties [1]. Nutmeg is evergreen tree, native to the rain forest Indonesian. It belongs to the family Myristicaceae and known as "*Myristica fragrans* in appearance, however, they have less intense flavour and aroma [2]. Many believe that heart problems may be alleviated by nutmeg, as it can help increase blood circulation and stimulate the cardio-vascular system. It is also good for digestion, getting rid of both gas and stomach aches and relieving vomiting, diarrhea, and flatulence as well as encourages appetite. Nutmeg can also help with respiratory problems such as a cough from the common cold. It is often found as an ingredient in cough syrups. It is said to be able to help with asthma. While there are many health benefits of nutmeg, care should be taken not to exceed the minimum dose as it can be toxic and can cause serious health problems. Never consume more than 30 grams (around 6 tablespoons) in a day, and even this amount would be considered excessive. With the growing interest in Nature's simple remedies and the fact that all human beings need some help for their many diseases and illness and the belief that this needed help comes from nature; from simple country's herbs, some species of plants that are more or less almost forgotten now seen to be very useful hence there is the need to know then, study, use the and in particular love them. These species include nutmeg and other vital ones.

Botany and cultivation

Nutmeg is a dioecious plant which is propagated sexually and asexually the latter being the standard. Sexual propagation seedling yields 50% made seedlings, which are unproductive. As there is no reliable method of determining plants sex before flowering the sixth to eight year, and sexual propagation Epicotyls' grafting, approach grafting and patch budding have provided successful, epicotyls grafting being the most widely adopted not preferred, methods, because of its low (35 – 40%) success rate [1]. The tree is about seven meters high with a grayish-brown or black. The branches are spread in whorls. The leaves are petioled, glabrous, alternate and aromatic. The flowers are small in axillaries racemes. The fruit is a glabrous drupe with succulent pericap and a winkled mace around the seed. The seed/kernel is firm, fleshy and abounding in oil. The kernel is the nutmeg which is used commercially and has medicinal properties [3].

The spice tree is a large evergreen plant that

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thrives well under tropical climates. A fully grown tree reaches about 50-60 feet in height and is the scarce of nutmeg and mace, two valuable spices. The nutmeg fruit, in fact, is a drupe, about the size of an apricot, which when ripens slits up to reveal single centrally situated oval shaped hard kernel known as nutmeg spices. The seed is closely enveloped by crimos-red colored lacy or thread like arils known as mace. Both spices have a similar warm, sweet aromatic flavor [4]. Nutmeg is widely used food spice that has received attention as an alternative hallucinogens [1]. Nutmeg and mace, have been used in Indian cooking and folk medicine. In folk medicine, nutmeg has been used to treat gastric disorders and rhevluatism and also as a hypnotic and an aphrodisiac [5]. During the 6th century, interest developed in the use of nutmeg as an abortifacient and a stimulant for muscles [6]. These properties have been largely discounted but remain a persistent cause of nutmeg intoxication in women. Nutmeg and mace are 2 slightly different flavored spices, both originating from the fruit of the nutmeg tree, *Myristica fragrans*. This slow growing evergreen grows to more than 20m and is cultivated in India, Ceylon, Malaysia and Canada. The fruit, which is called a drupe or a nutmeg apple, is similar in appearance to a peach or an apricot. When the mature fruit spots open, the nutmeg (stony endoeag) or seed surrounded by a red, slightly fleshy network or aril is mace. The nut is removed and dried to produce nutmeg.

Nutritional benefits of nutmeg

Nutritionally, nutmeg is rich in energy, carbohydrates, proteins and dietary fibre. It is particularly rich in vitamins A, C. and E. It also contains electrolytes (Sodium and Potassium) minerals (calcium, copper, iron, magnesium, manganese, zinc and Phosphorus) and phytonutrients including carotene-B and crypo-xanthin B. Nutmeg is also rich in moisture (14.3%) either extract (36.4%), fibre (11.6%) volatite oil(6-16%), starch (4.6-24.24.2%), pentosans (2.25%), furtural (1.5%) and pectin (0.6%). The flavour and therapeutic action and due to the volatile oil. The nutmeg oil is a mobile, colourless and pale yellow liquid, with a characteristic odour and the major constituents of the oil are d-prinene and d-camphene Nutmeg bitter produced from the plant is commercial and highly aromatic fat is ground and cooked or steamed before pressing. It is a soft solid, yellow or yellowish red in colour with an odour and taste of nutmeg [6].

Both nutmeg as well as mace is used is mace as delicate flavor and gives saffron color to the food items. Whole kernels generally preferred over powdered form since they possess more essential oils and husk that give rich flavor and freshness to recipes. In general, completely dried kernels are either grated or milled just before being added at the last moment of cooking. However, consumption of nutmeg in large doses may cause lack of concentration, sweating, palpitations, body pain and in severe cases hallucination and delirium [7]. But consumption in a normal or minimal doses, it may be used safely in pregnancy and lactation. Chemically, Nutmeg seeds contain 20% to 40% of a fixed oil commonly called nutmeg butter. This oil contains mysristica acid, mymiristin, and glyecrides of lauric, trrdecanoic, stearie and palmitic acids nutmeg also yields 8% - 15% of an essential oil that is believed to be partially responsible for the effects associated with nutmeg intoxication. The essential oils of nutmeg and mace are very similar in chemical composition and aroma, with wide colour differences (brilliant orange to pale yellow). The oils are also used for flavouring food product. Nutmeg oil also contains in small quantity sabinene, cymene, alpha-thulene, gamma–terpinene, and montoterpene alcohols [8]. Phenolic compounds found in nutmeg are reported to have antioxidant properties; other isolated compounds include the resorcinol smalbarieone B and C as well as ligan and neoligans [9]. It is worthy of note that:

Vitamin A in the form of beta-carotene helps boost the immune system.

Vitamin A in the form of beta – carotene, prevents eye, problems.

Vitamin C is an antioxidant and helps boost the immune system.

Vitamin C helps fight infections.

Vitamin C helps keep blood vessels health.

Vitamin E is an antioxidant and helps boost immunity.

Vitamin E, is good for nerve health.

Vitamin E helps wounds heal.

Iron helps red blood cells carry oxygen to all parts of the body.

Without the proper amount of iron, you will feel weak and tried.

Photochemical called phytosterols protect against colon cancer by slowing down the reproduction of cells in the large intestine.

Phytosterols reduce inflammation.

The nutritional value of nutmeg is presented in Table 1.

Health benefits of nutmeg

Nutmeg, with its sweet, spicy and nutty taste, is an essential constituent used in most of the Indian kitchens. Although the culinary value of this magical spice is well-known, its medicinal and therapeutic values are mostly unheard of. Even though our forefathers used nutmeg in numerous medicines, we generally overlook this powerful little spice, when we actually should amass it in our pantry.

Brain booster

One of the main properties of nutmeg is that it is helpful in stimulating the brain. It provides relief from stress and fuels mental activities as well. It can even boost concentration and assimilation rate as it is supposed to improve blood circulation to brain. However, make sure to take in a very little amount, as too much can cause delirium [10].

Tonic for the heart

Nutmeg proves to be an excellent tonic for the cardiovascular system. It increases the blood circulation and stimulates the heart functions [11].

Detoxifier for kidney and liver

Nutmeg oil is a great liver tonic, as it can remove the toxins therein. It is helpful in treating kidney infections and dissolves kidney stones also [12].

Induces sleep

Research shows that nutmeg can beat insomnia. It boosts the level of serotonin, which helps induce relaxation in turn. You can incorporate it in your tea, coffee or herbal tea, even sprinkle a few seeds in your dessert [13].

Removes bad breath

Nutmeg oil is helpful in treating bad breath [2]. It is also antiseptic in nature and helps cure toothaches as well gum problems. It is because of this property that the oil is even used in many kinds of toothpaste. If you are suffering from dental problems, incorporate nutmeg in your diet [14,15].

It is an aphrodisiac

Nutmeg is an excellent aphrodisiac. Around 18th century, it was used to treat male sexual dysfunctions. A recent study also confirms the aphrodisiac nature of this spice [7].

Treats stomach disorders

Nutmeg helps in getting rid of flatulence, diarrhoea, and improves appetite as well. However, before using it for treating stomach disorders, consult a physician as it is alleged that large doses of nutmeg can cause hallucination and in some cases, even death.

Pain reliever

Nutmeg oil has anti-inflammatory properties and can be used as pain reliever. If applied to the affected areas, the oil can treat joint and muscle pains. It can also reduce joint swelling and it is also helpful in treating rheumatic fever [16, 17].

Used in cough syrup

Nutmeg is helpful in clearing up the congestion resulting from cold and thus, is widely used in cough syrups. It's even helpful in aroma therapy [5,18].

Table 1. Nutritional values of Nutmeg per 100 g

Nutrient data base	**Nutrient Value**	**Percentage of RDA**
Energy	525 Kcal	26
Carbohydrates	49.29 g	38%
Protein	5.84 g	10%
Total Fat	36.31 g	180%
Cholesterol	0 mg	0%
Dietary Fiber	20.8 g	55%
Vitamins		
Folates	76 µg	19%
Niacin	1.299 mg	8%
Pyridoxine	0.160 mg	12%
Riboflavin	0.057 mg	4%
Thiamin	0.346 mg	29%
Vitamin-A	102 IU	3.5%
Vitamin C	3 mg	5%
Electrolytes		
Sodium	16 mg	1%
Potassium	350 mg	7.5%
Minerals		
Calcium	184 mg	18%
Copper	1.027 mg	114%
Iron	3.04 mg	38%
Magnesium	183 mg	46%
Manganese	2.900 mg	126%
Phosphorus	213 mg	30%
Zinc	2.15 mg	20%
Phyto-nutrients		
Carotene-ß	16 µg	--
Crypto-xanthin-ß	90 µg	--
Lutein-zeaxanthin	0 µg	--

Other medical uses

Since ancient times, nutmeg and its oil were being used in Chinese and Indian traditional medicine for illness related to the nervous and digestive systems. The compounds in these spices such as myristicin and elemicin are soothing as well as stimulant properties on brain [19]. Nutmeg oil contains eugenol, which has been used in dentistry for toothache relief [20]. The oil is also used as a

local message to reduce muscular pain and rheumatic pain of joints. Freshly prepared decoction with honey has been used to relief of nausea, gastritis and indigestion ailment. Nutmeg cures diarrhea, rheumatic pains; powdered seeds or decoction of the seeds are used in the treatment of diarrhea, carminative and rheumatism [21].

The powdered seed is added as flavouring agent to conceal the unpleasant taste/odour of several herbal preparations. The plant is also used as an insecticide [11]. The decoction of the nutmeg is used for the treatment of flatulence, nausea and vomiting. The oil of the nutmeg is rubbed over the stomach to relieve pain. Roasted nutmeg paste is applied locally to take care of leucorrhoea, a whitish discharge from the urine cavity or vagina. Charred nutmeg is an excellent remedy for fevers and chills and the dose is generally half to one gram taken twice a day. Grated nutmeg mixed with Vaseline is applied externally to cure piles. To get rid of pimples, grind equal quantities of nutmeg and black pepper. The leaves and bark of nutmeg contain essential oils used for soap production, ointment, perfumes and candles. The oil is used externally for rheumatism.

The oils are also used for flavouring and liqueurs and cosmetics. The oil is also recommended for inflammation of bladder and urinary passage. Nutmeg butter or fat is used as a mild external stimulant in ointment hair lotions and plasters. It also forms a useful application in cases of rheumatism, sprains and paralysis. The essential oil, obtained from the leaves is toxic to weeds hence used as weedicides, could also be use in the preparation of chewing gums and other flavouring essences.

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