



‘NIGELLA SATIVA’ THE SEED OF BLESSING

SRUSHTI TEKADE, MAHIMA GAWAI, SHAIKH SALMAN

Abstract

Black cumin seeds, or *Nigella sativa*, are incredibly rich in natural compounds with a variety of therapeutic applications. *in vitro*, including natural antioxidants, antidiabetic, anti-inflammatory, anticancer, and wound-healing capabilities in several human body sites, as well as antibacterial and antifungal action. In addition to being well-known for its culinary applications, *Nigella sativa* is a popular therapeutic herb that has long been valued in traditional medicine. It is highly well-liked in many traditional systems, including Siddha, Ayurveda, and Unani. Oil and seeds have long been used in folklore in a variety of food and medical systems. Numerous conditions, including skin disorders, jaundice, gastrointestinal issues, anorexia, conjunctivitis, dyspepsia, rheumatism, diabetes, hypertension, intrinsic hemorrhage, paralysis, amenorrhea, and asthma, have been shown to be significantly improved by *nigella sativa*. A dicotyledonous plant belonging to the Ranunculaceae family, black cumin has long been used as a medicinal herb. Its rich historical background and traditional history draw attention. The plant's active components come from *nigella* seeds and the oils extracted from them. Eastern Mediterranean nations as well as Eastern and Southern Europe are the birthplaces of black cumin. Other 134 countries started to import black cumin. It has also extended to Turkey, India, and North Africa.

Keywords: Black Seed, Kalonji, Black Cumin, Nutraceutical, Essential Oil.

Introduction

Since ancient times, plants have been a key source of medicine in all societies. "This black cumin is healing for all diseases except death," said the Prophet Muhammad (PBUH).^[16] Many native herbs are employed in the traditional system to diagnose, prevent, and treat physical, mental, and social imbalances (Manjunath, 1990). The foundation of traditional medicine is made up of medicinal plants, which are crucial to both individual and community health (Farnsworth, 1994). These plants' therapeutic efficacy is derived from a few chemical compounds that have specific physiological effects on humans (Edeoga et al., 2005).^[11] The medications are made from the entire plant or from various parts of it, such as the leaves, stem, bark, roots, flowers, seeds, etc. Certain medications are made from plant products that are excreted, like gum, resins, and latex. According to estimates from the World Health Organization, 80% of people benefit from using herbal treatments. As a result, it is essential to assess the rich history of traditional medicine. Nevertheless, several studies on medicinal plants still need to be conducted because very few plant species have had their therapeutic qualities, mechanisms of action, safety, and toxicity extensively examined.^[2] Long known as a cultivated plant, black cumin is frequently used in bread, muffins, and several cheese variations, particularly in the Middle East. Ancient Egyptians also utilized black cumin for medicinal purposes. The Pharaohs' private physicians were said to have kept a bowl of black cumin on hand at all times and employed it as a remedy for



inflammations, headaches, colds, and toothaches in addition to helping with digestion following binge eating. In ancient writings, Hippocrates and Dioscorides referred to the black cummin as "Melanthion" (Altinterim, 2010)^[5].

Nigella Sativa Plant

Biological Source:

Nigella sativa plant is an annual herbaceous plant of family Ranunculaceae, it is abundantly grown in the Middle East, Eastern Europe, and Western Asia.

Synonyms:

- English: Fennel Flower Black Cumins, Love-In-Amist., Nutmeg Flower, Roman Coriender
- Arabic: Habatut Barakah Shooneez, Habba Sauda, Habb al-barka • Hindi: Kalonji.
- Marathi: Kalonji Jira
- Family: Ranunculaceae

Classification

- Kingdom- Plantae
- Division & Class -Magnoliophyta
- Order- Ranunculales
- Genus- Nigella
- Species- N. Sativa

MICROSCOPY ^[18]

Shape	Pear-shaped with slightly curved tapered side is flat and the other is convex. The surface is slightly and regularly embossed
Colour & Size	Black with hints of light grey, Length 4.1 cm width 2.0 cm
Flavour and evolution of taste	Metallic taste when the seed comes into contact with dental enamel. After crushing, taste of lead pencil, followed by sharp, aromatic peppery taste, becoming irritant at the base of the throat and leaving a very persistent bitterness on the palate
Crushing	Easy with dissociation of tissues
Microscopic observation	Brick red external tegument consisting of polygonal cells (penta- to heptagonal) which are very slightly embossed. Grey-coloured albumen consisting of thin-walled cells. Several oil droplets Tissue surrounding the albumen is orangey-brown consisting of a single layer of polygonal cells (square) which are often aligned polygonal cells.

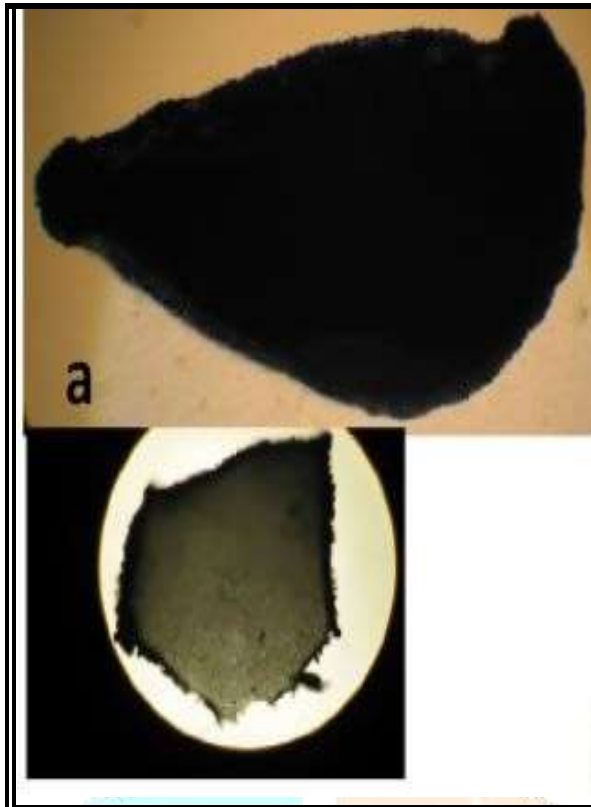


Fig. 20 x

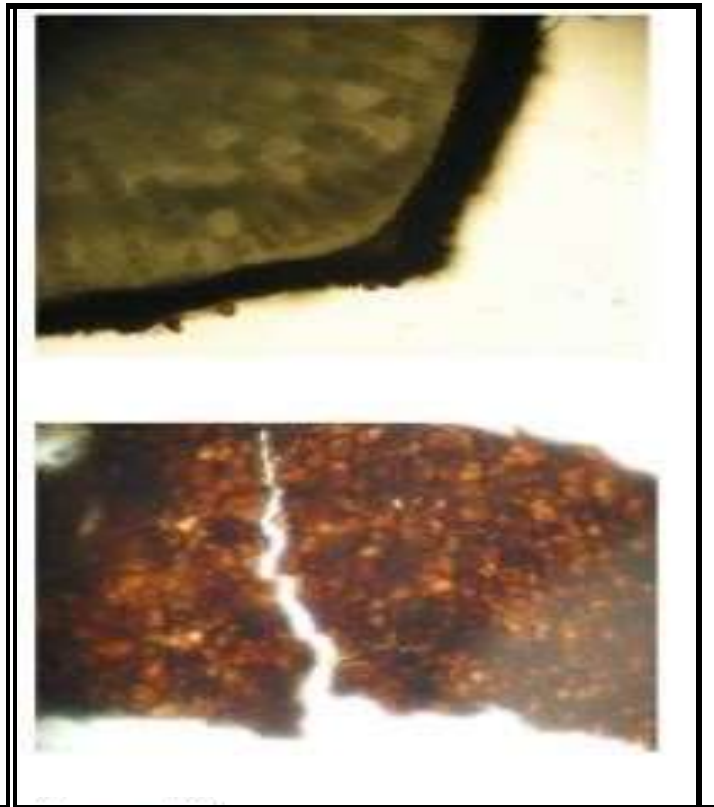


Fig. 400x

Morphology of the Plant

Hardy annual plants, black cumin plants reach a height of 20–60 cm (8–24 inches). The plant features a developed taproot and delicate leaves that are deeply divided on branching stems. Pale blue or white in color, the blooms include five petals, numerous stamens, and five or six long, connected carpels. The capsule containing the black triangular or pyramidal seeds has five or six segments, each of which ends in an elongated protrusion. The plants may grow well in a variety of soil types and spread readily, turning weedy in some areas.



Substitutes/Adulterated of *N. sativa* ^[14]

1) Black Sesame Seeds

Not only do they taste like nigella seeds, but they also resemble them virtually perfectly in appearance.

2) Fennel Seeds

They are used in many recipes and have a strong, sharp flavor. They are used to give soups and curries a hint of nutty taste in Indian cooking.

3) Caraway Seeds

These tiny aromatic seeds have a flavor profile comparable to nigella seeds, making them an excellent substitute in baking and cooking.



Geographic Distribution ^[25]

It is indigenous to Southern Europe, North Africa, and South West Asia. According to Mahr (2009), Southern Europe and Northern Africa are the native habitats of roughly 15 species of *Nigella*, sometimes known as "love-in-a-mist." It has also been stated by Kulloli (2016) and Lal (2018) that black cumin is indigenous to South and Southwest Asia. In the past, black cumin was grown in at least North Africa, the Middle East, and South Asia, where the seed has been utilized for centuries or longer in traditional medical systems.



Cultivation ^[23]

Before planting the seed, the ground for black cumin is prepared; it should be plowed. This process takes at least one month. 2–3. *Nigella* seeds can be sown in rows or by disseminating. Ridges or beds are additional potential cultivation techniques for black cumin. Depending on the properties of the soil, times or more. *Nigella* seeds can be sown by rowing or disseminating. In the production of black cumin, protecting the crop from weeds, illnesses, and insect pests is another crucial management task.

Collection ^[22]

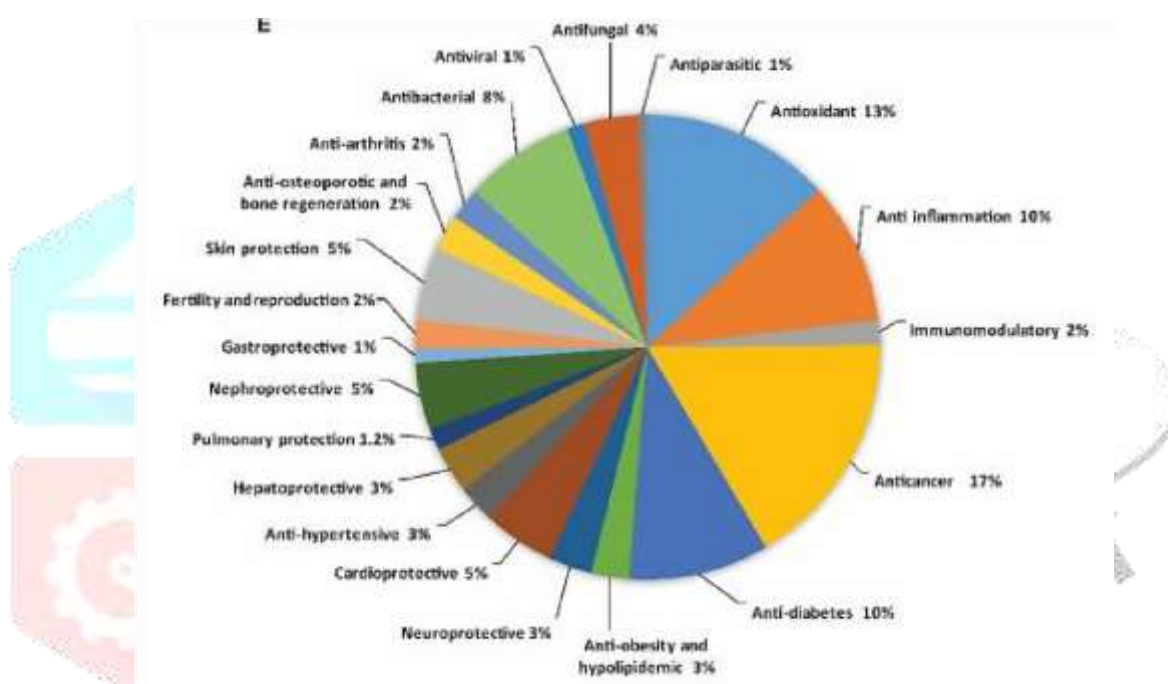
From the day of seed sowing, black cumin takes 58 to 62 days to initiate the flower bud and 78 to 87 days to open the flowers. Black cumin typically takes 135 to 150 days to mature. Before the seed breaks, harvesting is completed. When the hue of the capsules turns brown, it is one sign of maturity. Black cumin has a certain maturity type, and it is harvested by pulling the plant up, tying it in bundles, and then pushing it upward until it dries out entirely. To extract the seeds from contaminants, the plant is next threshed and winnowed. After being dried, the seeds are kept in dry, cool environments.

Phytoconstituents ^[24]

Group	Sub Groups	Active constituents
Terpenes	Aliphatic	P-cymene, α -pinene, dithymoquinone, thymohydroquinone, Carvacrol, carvone, limonene, 4-terpineol, citronellol, anethol, Thymoquinone
	Isoquinoline alkaloids	Nigellicimine N-oxide, Nigellicimine
Fixed oil	Unsat. Fatty acids	Dihomolinoleic acid, eicodadienoic acid, Oleic acid, Linoleic acid
	Sat. Fatty acids	Stearic acid, Palmitic acid
Coumarins	Oxy coumarin	7-oxy-coumarin
	Steroid al Hydroxy coumarin	Alpha hedrin 7-hydroxy-coumarin
Alkaloids	Methoxy coumarin	6-methoxy-coumarin
	Pyrazole alkaloids	Nigellidine, nigellicine

Saponins	Flavonoidal pigment Triterpenes	Quercetin Acetyl-steryl-gluc Steryl , glucosidesoside
Flavonoids	Flavonoidal glycoside	Trigillin quercetin-3-glucoside, Kaempferol 3-glucosyl galactosyl glucoside, quercetin 3-galactosyl glucoside
Amino acids	Essential amino acids	Lysine, methionine, histidine, tryptophan, leucine, Valine, phenylalanine, threonine,
Metals and trace element	–	Potassium, phosphorus, zinc, Calcium, iron

Medicinal Uses



Digestive stimulant action^[3]

The claims made about cumin seeds in traditional medicine and home remedies, including their ability to facilitate digestion, an investigation on animals has looked at the possibility of them stimulating the digestive enzymes. Particular attention has been paid to the effects of both continuous dietary intake and single oral administration of cumin seeds on the digestive enzymes of the rat pancreas and intestinal mucosa. Pancreatic lipase activity was decreased by dietary (1.25%) cumin, but the same considerably increased the activities of pancreatic trypsin, chymotrypsin, and amylase. Cumin lowered pancreatic lipase, amylase, trypsin, and chymotrypsin when taken orally in a single dose. Animals fed cumin had considerably greater small intestine maltase activity among the terminal digestive enzymes.

Antidiabetic effects^[27]

It has been demonstrated that nigella sativa and thymoquinone, its main ingredient, help diabetics control their blood sugar levels and lipid profiles. While the exact molecular mechanism of thymoquinone's effect on insulin secretion is still unknown, it is known that thymoquinone increases the use of glucose by raising serum concentrations, lowering high serum glucose levels, and lowering blood glucose by blocking gluconeogenesis. **Antioxidant effect^[27]**

The strong antioxidant activity of certain of the black cumin seed's active components, especially thymoquinone, has been directly linked to the seed's advantageous medicinal, anti-inflammatory, and anticancer properties. Furthermore, it was discovered that the seed possessed noteworthy concentrations of several other widely recognized powerful antioxidant components, including trans-retinol (vitamin A), tocopherols (a type of E vitamin), and selenium.

Cardio-protective influence through hypolipidemic and hypotensive effects ^[3]

Traditionally, *cuminum cyminum* has been used to treat hypertension and dyspepsia. Renal hypertensive rats have been used to assess the anti-hypertensive properties of cumin seed aqueous extract and its impact on oxidative stress, inflammation, and arterial–endothelial nitric oxide synthase production. Oral cumin (200 mg/kg body) for nine weeks increased plasma nitric oxide and decreased systolic blood pressure in rats with hypertension. This was accompanied by down-regulation of Bax, TNF- α , and IL-6 and up-regulation of Bcl-2, TRX1, TRXR1, and inducible nitric oxide synthase (iNOS) expression. These findings imply that in hypertensive rats, cumin seeds improve endothelial functioning and reduce oxidative stress and inflammation.

Chemo preventive effects ^[3]

The ability of dietary 2.5 and 5.0 percent cumin to prevent cancer was assessed in mice by comparing its effects against tumor genesis produced by benzo (α) pyrene in the stomach and 3-methylcholanthrene (MCA) in the uterine cervix. The stomach tumor was significantly inhibited by cumin. The impact on phase I and phase II enzymes involved in the metabolism of carcinogens and xenobiotics, antioxidant enzymes, and lipid peroxidation in the liver were also investigated. Dietary cumin significantly increased cytochrome P450 and cytochrome b5. Cumin boosted the phase II enzyme glutathione-S-transferase (GST), whereas catalase and superoxide dismutase (SOD) specific activity were markedly raised. Cumin was found to decrease lipid peroxidation, indicating that its capacity to regulate carcinogen metabolism may be the basis for its potential as a cancer chemo preventive agent.

Miscellaneous nutraceuticals effects ^[3]

Diarrhea has traditionally been treated using cumin seeds. The effects of an aqueous cumin seed extract (100, 250, and 500 mg/kg) on castor oil-induced diarrhea in albino rats have been studied. In a dose-dependent manner, the extract delayed the time it took to defecate, secrete intestinal fluid, and propel the colon. It also significantly reduced the frequency of diarrhea. A crucial mechanism in the pathogenesis of various neurodegenerative illnesses, particularly Parkinson's disease, is the fibrillation of α -synuclein (α -SN). Cumin aldehyde, a tiny and abundant natural chemical, has the ability to modify α -SN fibrillation, as demonstrated by a study on the inhibitory effects of *C. cyminum* essential oil on α -SN fibrillation. This suggests that such natural active aldehyde may have potential therapeutic applications.

Health effects of *N. sativa* ^[3]

Traditional medical systems have been using black cumin (*N. sativa*) to treat a variety of illnesses. Moroccan traditional medicine uses *nigella sativa* to treat diabetes mellitus. Its effectiveness has been studied in numerous pre-clinical and clinical studies utilizing the seed oil, essential oil, and its separated primary component TQ. These studies offer some preliminary evidence in favor of its application to atopic dermatitis, allergic rhinitis, and asthma.

Dyspepsia, respiratory issues, diabetes mellitus, and metabolic syndrome may benefit from the use of black cumin. According to a meta-analysis of clinical trials, *N. sativa* can lower blood pressure in the short term by lowering systolic and diastolic blood pressure. Its many extracts can also lower total cholesterol, LDL cholesterol, and triglycerides. Numerous research conducted in the past few decades have confirmed its positive health effects, especially in the areas of diabetes, dyslipidemia, hypertension, and obesity. Supplementing with *N. sativa* may help regulate blood sugar levels in people, according to a comprehensive analysis of all human studies.

Ameliorative effects of *N. sativa* on dyslipidemia ^[3]

One known risk factor for ischemic heart disease is dyslipidemia. Hyperlipidemia has been treated and prevented with *nigella sativa*. Various forms of *N. sativa*, such as methanolic extract, TQ (3.5–20 mg daily), seed powder (100 mg–20 g daily), and seed oil (20–800 mg daily), decreased plasma levels of triglycerides, total cholesterol, and low-density lipoprotein cholesterol. *N. sativa* was shown to be beneficial in clinical trials when used in addition to traditional antidiabetic and hypolipidemic drugs. *N. sativa* has lipid-lowering properties by inhibition of dietary cholesterol absorption, reduced hepatic cholesterol production, and up-regulation of LDL receptors. Overall, the results of a clinical and experimental investigation point to *N. sativa* seeds as a potential natural treatment for dyslipidemia patients.

Anti-Inflammatory and Analgesic Effects^[12]

Many diseases, including cancer, rheumatoid arthritis, osteoarthritis, asthma, allergies, and cystic fibrosis, are linked to inflammation and can cause both acute and/or chronic pain. The groups of medications that make up the majority of currently available anti-inflammatory treatments frequently result in serious side effects from prolonged usage, including salt and water retention, bone marrow depression, and gastrointestinal ulcers. Black cumin is one of the medicinal plants that may include innovative biological molecules that are less harmful and have fewer adverse effects. Comparable to indomethacin, the volatile oils of black cumin and thymoquinone at different concentrations demonstrated dose-dependent anti-inflammatory efficacy against carrageenan-induced hind paw edema in rats. Black cumin is one of the medicinal plants that may include innovative biological molecules that are less harmful and have fewer adverse effects. Comparable to indomethacin, the volatile oils of black cumin and thymoquinone at different concentrations demonstrated dose-dependent anti-inflammatory efficacy against carrageenan-induced hind paw edema in rats.

Immunomodulatory action^[3]

A thorough analysis has been conducted on the immunomodulatory qualities of *N. sativa* and TQ, the main active component, with regard to their demonstrated capacity to influence humoral and cellular adaptive immune responses in experiments. The present study highlights the molecular and cellular mechanisms that underlie the immunomodulatory actions of TQ and *N. sativa*. Additionally, signal transduction pathways that are associated with immunoregulatory functions are proposed. TQ and *N. sativa* extracts can be used therapeutically to control immunological responses in both infectious and non-infectious diseases such as cancer, autoimmunity, and allergies.

Antimicrobial activity^[12]

Since the latter part of the 20th century, antimicrobials have formed the cornerstone of clinical medicine and have prevented several cases of deadly microbial infections. However, it has been observed that pathogenic microbes worldwide have become increasingly resistant to antibiotics in the late 20th and early 21st centuries. An international effort is required to find creative answers to the growing threat of microbial diseases and antibiotic-resistant bacteria. One potential source of these remedies could be natural goods like plants, which are chosen for their well-established ethnomedicinal uses.

Anti-cancer properties^[3]

A variety of in vitro and in vivo models have been used to study the anti-cancer properties of *N. sativa* in great detail. In a variety of primary cancer cells and cancer cell lines, *Nigella sativa* has the ability to exhibit antioxidant, anti-mutagenic, cytotoxic, pro-apoptotic, anti-proliferative, and anti-metastatic properties. According to the research that are now available, *N. sativa* may be able to effectively regulate the genesis, development, and metastasis of tumors either alone or in conjunction with traditional chemotherapeutic medications.

Antifungal Activity^[3]

It has been observed that the essential oil of *N. sativa*, regardless of its source, exhibits a moderate inhibitory action against fungi that produce aflatoxin, pathogenic strains of yeast, dermatophytes, and nondermatophytic filamentous fungi. The appearance of these toxic fungi made it clear that the *N. sativa* treatment targeted the cell wall, plasma membrane, and membranous organelles, primarily in the nucleus and mitochondria. Additionally, several black cumin and TQ extracts shown strong fungicidal action against dermatophytes. • strains such as *Microsporum gypseum* and *Trichophyton mentagrophytes* that are less effective than ketoconazole but still superior to fluconazole. Similar to Amphotericin-B, thymoquinone also inhibited the development of *Aspergillus niger* and *Fusarium solani*. It was also effective against *Candida albicans*, *Candida tropicalis*, and *Candida krusei*. Similarly, Taha et al. reported that the active ingredients in black cumin, such as thymol, thymohydroquinone, and TQ, shown strong antifungal activity against a number of clinically isolated fungal species, including molds, yeasts, and dermatophytes. *N. sativa* is a promising candidate with a variety of antibacterial properties that may be investigated as a food additive and natural preservative to keep food from going bad.

Antiviral Activity^[12]

In a mouse model, *N. sativa* seed oil was reported to inhibit the amount of the cytomegalovirus, causing the infection to become undetectable in the liver and spleen after 10 days of intraperitoneal injection. This may have resulted from an increase in the quantity and capability of CD4+ve T cells as well as an increase in interferon- Gamma (INF-). Remarkably, among the thirty patients infected with the hepatitis C virus (HCV) and not qualified for IFN- α /ribavirin therapy, there was a notable improvement in the HCV viral load (16.67% became seronegative and 50% showed significant decrement) as well as a decrease in laboratory parameters such as total protein, red blood cell count, and platelet count.

Pulmonary-protective activity and anti-asthmatic effects^[20]

The effects of TQ and nigellone on the trachea (antispasmodic action) and their impact on respiratory clearance were documented by Wienkotter et al. Using a microdialysis approach, the effects on ciliary action in the tracheal area regarding Ba⁺⁺ carbachol- and leukotriene-induced trachea contractions and the transport of the fluorescent dye rhodamin B were examined. When Ba²⁺ depolarized the trachea, nigellone and high TQ concentrations inhibited the contraction in a concentration-dependent manner. TQ and nigellone both prevented the trachea contractions brought on by leukotriene-d LT₄. It was determined that whereas TQ does not have these effects, nigellone has an antispasmodic impact and increases mucociliary clearance. Thus, it's possible that nigellone, but not TQ, could be helpful in treating various respiratory conditions.

Liver and kidney parameters^[15]

One study examined renal parameters, and four studies assessed the effects of *N. sativa* on liver parameters. According to one study, *N. sativa* considerably raises the fatty liver grade in NAFLD patients. *N. sativa* was shown to lower aspartate aminotransferase (AST) levels in three investigations. *N. sativa* did not, according to one study, lower AST levels. While *N. sativa* was found to have no effect on alanine aminotransferase (ALT) levels in two trials, it was found to lower ALT levels in two other investigations. Furthermore, one study found that using *N. sativa* dramatically lowered the levels of alkaline phosphatase. *N. sativa* greatly decreased urea nitrogen in renal parameters, but it had no effect on creatinine, bilirubin, or uric acid levels.

Anti-schistosomiasis activity^[20]

Mahmoud et al. investigated the protective effect of NSO against liver damage caused by *Schistosoma mansoni* (*S. mansoni*) infection in mice. The amount of *S. mansoni* worms in the liver and the overall number of ova deposited in the liver and intestine were both lowered when the NSO was administered by itself. The most notable result of administering NSO along with PZQ was a further decrease in the number of dead eggs compared to PZQ alone. Mice infected with *S. mansoni* showed large increases in serum activity of ALT and GGT, together with a modest rise in AP level, and a decrease in serum albumin level. The prior alterations in ALT, GGT, AP activity, and serum Alb concentration were only partially reversed by the administration of NSO. These findings imply that NSO might be involved in preventing the changes brought on by an infection with *S. mansoni*. *N. sativa* seeds exhibit strong biocidal activity against *Schistosoma mansoni*, miracidia, cercariae, and adult worms, according to the results of in vitro tests every stage of the parasite and a suppressive effect on mature female worms' ability to lay eggs. *N. sativa* seeds also caused oxidative stress in adult worms, as shown by a decline in the activity of the glucose metabolism enzymes hexokinase and glucose-6-phosphate dehydrogenase as well as antioxidant enzymes superoxide dismutase (SOD), glutathione peroxidase, and glutathione reductase.

Gastro-protective effect^[17]

Numerous things can have an impact on the gastrointestinal tract, such as microbial infections, different types of ulcers, and drug-induced adverse effects. It was discovered that natural items, such as TQ and black cumin seed, were useful in preventing these anomalies. Another review has examined black cumin's potential to prevent or cure stomach ulcers. In addition, TQ decreased the volume and overall acidity of gastric output when compared to carbachol, indicating that TQ may be effectively utilized to treat hyper gastric acidity-related disorders like dyspepsia, gastritis, and reflux esophagitis in addition to peptic ulcers.

Reproduction Effects on Fertility and Reproduction ^[17]

In men, reproductive soundness is based on testosterone levels, sperm counts and qualities, and semen quality; in women, it is influenced by levels of ovarian function, progesterone, estrogen, and other reproductive hormones. Numerous preclinical and clinical investigations have shown that black cumin seed, especially its oil (NSO) and primary ingredient thymoquinone, positively influence key fertility indices and improve reproductive success. Rate of testicular spermatogenesis, semen parameters, and seminal vesicle development were all markedly enhanced by 45 days of oral gavage of NSO. In the same study, NSO was found to mitigate acetamiprid-mediated harmful effects on reproduction, including altered testicular weight increase, semen quality, and serum testosterone levels, when rats were co-administrated with the neonicotinoid insecticide. Since NSO enhanced testosterone, steroidogenic activities are inhibited at the molecular level by the acetamiprid-induced drop in serum testosterone levels. Testosterone levels in rats exposed to acetamiprid were one-fourth of those in rats co-administered with NSO, indicating a favorable effect on testicular and spermatozoa functioning. Furthermore, the testis and testicular cells, among other reproductive organs and tissues, are extremely vulnerable to oxidative stress. Therefore, by increasing the activity of antioxidant enzymes, NSO may have a direct impact on the antioxidant defense mechanisms of reproductive cells and tissues. (for instance, catalase, glutathione peroxidase, and superoxide dismutase). These possible antioxidant properties in turn reduce the development of reactive oxygen species (ROS) and lipid peroxidation in reproductive tissues and cells, which in turn enhances fertility and reproduction.

Cosmeceutical Uses

1. Hair Loss ^[6]

In their book *Natural Remedies of Arabia*, Robert W. Lebling and Donna Pepperdine MH 21 noted that *Nigella sativa* seed powder, arugula juice, olive oil, and vinegar are used in Saudi Arabia to control hair fall 33. A condition known as telogen effluvium is when hair starts to shrink or shed early in the telogen phase. Thymoquinone (TQ), the main active ingredient in *Nigella sativa* seed, has anti-oxidant and anti-inflammatory properties by blocking proinflammatory mediators. This was investigated in this work. such as prostaglandin D2 and cyclooxygenase were employed. Twenty Telogen effluvium-affected patients were chosen for the randomized, double-blind, placebocontrolled investigation. For a period of three months, ten of the patients received daily treatment with a lotion containing 0.5% *Nigella sativa*, and the remaining ten received daily treatment with a placebo. Before therapy (T0), three months after treatment (T3), and six months after treatment (T6), three independent dermatologists examined the patient and used video dermatoscopic analysis (Trichoscan Dermoscopy Fotofinder®) to assess improvement.

2. Skin infections ^[6]

In their book *Natural Remedies of Arabia*, Robert W. Lebling and Donna Pepperdine MH discussed using a mixture of *Nigella sativa* seed powder and honey to treat acne and achieve a clear face 33. In his book *Medicine of the Prophet*, Imam Ibn Qayyim Al-Jauziyah described the application of henna, or its oil, combined with burnt black seed mixed with waxes as a therapy for skin ulcers. *Nigella sativa* seed has also been used to treat dandruff and diseases including leprosy and black pigmentation when combined with vinegar 32. One autoimmune skin condition called vitiligo causes the skin's melanocytes to die, leaving white spots on the skin. The effectiveness of fish oil and *Nigella sativa* seed against patients' vitiligo lesions was investigated in a study. Patients administered the trial drugs including *Nigella sativa* seed oil to their lesions twice a day. The Vitiligo Area Scoring Index (VASI) was used to measure the improvement of lesions. The mean VASI score in patients dropped from 4.98 to 3.75 after applying *Nigella sativa* seed oil, and the VASI itself dropped from 4.98 to 4.62. For people who apply fish oil topically. It was discovered that *Nigella sativa* seed oil was more effective in terms of the percentage improvement shown in the head, neck, and upper extremities. The patients did not notice any side effects. It was discovered that *Nigella sativa* seed oil was more effective than fish oil.

3. Sun Protection ^[6]

In one study, the in vitro UV protection factor of a cream containing 0.5% *Nigella sativa* oil was evaluated. The formulation containing 0.5% *Nigella sativa* oil was found to have an ultra-boot star rating of two and an SPF value of 1.05. A rating of two indicates that the sunscreen activity is genuine.

4. Acne Vulgaris^[17]

One of the dermatological disorders that arises from the blockage and persistent inflammation of sebaceous follicles in the skin is acne vulgaris. Numerous research indicate that black cumin seeds may have anti-acne vulgaris effects. According to research by Nawarathne et al., *S. aureus* and *P. acnes* growth was prevented for 30 days by applying three topical gels prepared with ethyl acetate extract of black cumin seeds. Using ethosomes gel formulation filled with TQ It has been demonstrated that (THQ–EGF) reduces the size and quantity of sebaceous glands in rats, indicating that TQ is a useful treatment for acne vulgaris. Black cumin hydrogel was given twice daily to 60 patients in a randomized, double-blind, controlled clinical trial. The results showed a significant decrease in the number of comedones, papules, and pustules without any adverse effects, indicating that black cumin may lessen the symptoms of acne vulgaris.

Adverse Effects^[26]

1. The skin rash caused by black cumin
2. Having nausea or upset stomach
3. Although black seed oil or gel can be administered topically, prolonged usage of the product may result in skin rashes.

Marketed Formulation

1. **Mohammedia products Nigella Sativa Kalonji oil, For Pharma, Packaging Size: 50ml^[7]**
₹ 145/



Brand	Mohammedia products
Botanical Name	Nigella Sativa
Packaging Size	50ml
Usage/Application	Pharma
Nutritional Benefits	Prevent In Heart Disease
Packaging Type	Plastic Bottle
Oil Type	Black seed oil

2. Kalonji Pimple Cream, 60gm ^[10]

₹ 110 / Piece

By Delhi Unani Dawakhana, Ahmedabad

Product Specifications

Type

Skin Cream

Gender

Unisex

Packaging Size

60gm

Brand

Mohammedia products



Product Description

Mohammedia Kalonji Herbal Pimple Cream is especially formulated to treat pimples, wrinkles, black heads, under eye darkness and also beneficial in post pregnancy marks. The regular use of this cream provides freshness and fairness to the face. It is made up of natural ingredients and has no side effects on the skin.

Homemade Remedies ^[21]

Boosts memory

When added to honey, kalonji seeds are said to improve your IQ. Take it every day on an empty stomach for improved cognitive performance. The elderly age group finds it highly beneficial to strengthen their weak memory. Consuming Kalonji seeds with mint leaves is advised by Ayurveda, as it helps improve memory and stave off neurological conditions like Alzheimer's disease.

Helps control Diabetes

When it comes to managing type 2 diabetes blood sugar levels, kalonji is quite beneficial. Type 2 diabetes: what is it? It is a long-term illness that impacts how your body utilizes and controls blood sugar. For best effects, diabetics should drink black tea and Kalonji oil on an empty stomach. To discover more foods that can aid with diabetes management, consult the Diabetes Food Chart.

Healthy heart

Kalonji has great heart-related benefits. By regulating the levels of harmful cholesterol in your body, it maintains the health of your heart. For best effects, use Kalonji oil with milk on a regular basis.

Reduces inflammation

Due to its anti-inflammatory qualities, kalonji seeds can be used to treat a variety of chronic inflammations. It is well known for relieving joint discomfort by lubricating the joints. To reduce inflammation, Ayurveda advises taking Kalonji oil on a daily basis.

Controls blood pressure

A teaspoon of Kalonji oil works like a charm! Indeed, it can lower blood pressure and stop the tendency to reoccur. If you have high blood pressure, you can take a teaspoon of Kalonji oil and mix it with some warm water.

Makes teeth stronger

Kalonji is good for your entire oral health, including weak teeth and bleeding gums, not just your teeth. Kalonji is an excellent treatment for tooth discomfort. Apply a mixture of half a teaspoon of Kalonji oil and one cup of curd twice a day on your gums and teeth to promote better dental health.

Relieves asthma

Asthma has become a highly widespread condition as a result of pollution. Asthma sufferers can benefit greatly from kalonji medication. Simply combine honey and Kalonji oil with warm water and consume it every day.

Support weight loss

You can look trimmer and slenderer by increasing your body's metabolism with the aid of kalonji. Studies show that consuming kalonji seeds with warm water will help you lose weight.

For skin and hair problems

Who wouldn't want to appear well? Kalonji, though, can assist you with that. It supports the upkeep of healthy hair and skin. For beautiful skin, mix its oil with lime juice. Rich in nutrients, kalonji helps to fortify hair and stop hair loss.

Protects the kidney

Kalonji efficiently lowers blood sugar, serum creatinine, and blood urea levels, which in turn reduces diabetic nephropathy—a kidney problem in diabetes. Infections and kidney stones are also treated with it.

Conclusion

Worldwide, *N. sativa* is regarded as a significant therapeutic herb. Its application in the food, pharmaceutical, and ornamental industries have significant economic significance. Different body parts are affected differently by the pharmacological actions of *N. sativa* and its components. According to reports now available, the plant has anti-inflammatory, anti-microbial, anti-cancer, anti-oxidant, anti-diabetic, and anti-hypertensive properties. Numerous studies have also shown its effects on the immune system, the digestive system, and the central nervous system.^[2] It is possible to draw the conclusion from our research that *Nigella sativa* seeds contain a variety of bioactive substances. Traditional healers use the seeds to treat a variety of illnesses because of their bioactive ingredients.^[1]

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