

NIGELLA

Nigella sativa L.

Family

Ranunculaceae, the buttercup family.

Parts Used

Seed.

Description

Nigella is native to Western Asia and Southern Europe and it grows profusely in Egypt, the Middle East and India. It is an annual flowering plant with small, delicate five-petalled flowers usually coloured white to pale blue. The flowers emerge in summer and the seed heads form in late summer. It grows between 20cm to 90cm tall with wispy, thread-like grey-green leaves. The fruit that develops from the flower is a spiky-looking capsule that resembles the seed head of a poppy. Each capsule is divided into

five seed-bearing compartments that are crowned by vertical, prominent spikes. When ripe they shatter to disperse the numerous tiny angular seeds which are jet black on the outside and white on the inside. The seed capsules of nigella are harvested as they ripen but before they have had a chance to explode and lose their cargo. After further drying the pods are threshed to remove the seeds. The seeds are occasionally confused with, and passed-off as, black sesame. It can seed so readily that some consider it a weed. Love-in-a-mist (*Nigella damascena*) is a related species of plant and is often found as an ornamental. *N. damascena* is not a suitable medicinal alternative to *N. sativa*.^{1,2,3}

Traditional Use

Nigella seeds have been considered a panacea in multiple traditional medicine systems for centuries. It has been traditionally used for the treatment of a



variety of disorders, diseases and conditions relating to the respiratory system, digestive tract, kidney and liver function, metabolism, cardiovascular system, the female reproductive system and immune system support, as well as for general well-being, including asthma, bronchitis, rheumatism and related inflammatory diseases. A tincture prepared from the seeds has been used in indigestion, loss of appetite, diarrhoea, oedema, amenorrhoea and dysmenorrhoea and in the treatment of worms and skin eruptions.⁴

Also known as kalonji, black seed and often, incorrectly, as black cumin seed nigella seeds are known for their diverse culinary uses and medicinal properties. According to Australian spice aficionado Herbie Hemphill: "A great deal of confusion surrounds nigella as in India it is occasionally referred to as black cumin, which it is not, and it has quite a different taste to true black cumin seed. Nigella is also often called 'black onion seed' or 'wild onion seed', another misnomer, made more confusing by the fact that true onion seeds have little flavour and are usually only for sprouting purposes." This warming spice has a pleasantly sharp taste that is described as slightly peppery and aromatic, like a mix between oregano and onions. Other descriptions suggest it is not unlike carrot, nutty with a distinctly metallic, lingering, peppery throat-drying quality. Nigella seeds are often seen on Turkish bread, and in Indian naan breads, because their flavour especially complements carbohydrates. It is an essential ingredient in the Indian five-seed spice blend panch phora, along with cumin, fennel, fenugreek and mustard seeds.⁵

Records suggest that nigella has been used medicinally for millenia to flavour food and for medicinal purposes, especially in the Middle East and Southeast Asia. It is very popular in various traditional systems of medicine like Unani (Arabic medicine), Ayurveda and Siddha (southern India). Nigella has been found in ancient archaeological sites in Turkey and Africa, most notably in the tomb of Tutankhamun, which is a testimony to how long humans have valued this plant. In fact experts believe that nigella's antibacterial properties may have led to its use as a preservative in the mummification process. It has been referred to as a "miracle herb" and "the herb from heaven". Its many uses have earned it the Arabic term, "Habbatul

barakah", meaning the seed of blessing. In Islamic literature nigella is considered one of the greatest forms of healing medicine due to the fact that the Prophet Mohammed described its healing powers saying: "Hold on to use this black seed [nigella], as it has a remedy for every illness except death".^{6,7,8}

Nigella is mentioned for its therapeutic properties by Hippocrates, the Greek physician considered to be the father of modern medicine, and Dioscorides (the Greek physician who wrote *De materia medica*), where it was named melanthion. Dioscorides used it as food as well as recommending it as a medicine for a variety of ailments including headaches, catarrh, respiratory issues, toothache, intestinal worms, leprosy and skin eruptions. It is also mentioned in the Holy Bible as curative black seed. Avicenna, a 10th century physician who wrote "The Canon of Medicine", recommended nigella for arthritis, enhancing the body's energy and to support recovery from fatigue and depression..⁹

As a medhya (intellect) herb in Ayurveda, nigella promotes brain functioning, by enhancing clear thinking and concentration, and calms the mind by providing a specific tonic effect on the nerve tissues. Other applications in Ayurveda include congested liver, jaundice and poor fat metabolism.¹⁰

Nigella is high in antioxidants which help neutralise harmful free radicals that may contribute to the development of diseases like cancer. Both test-tube and human studies have found that it may be effective against several types of bacterial infections. Some studies have found that nigella and its active components could help reduce markers of inflammation such as in rheumatoid arthritis.¹¹

Constituents

Alkaloids, saponins, sterols, phenolic compounds (quercetin) and essential oil. The essential oil has been reported in various studies to be made up of approximately 40 compounds. The terpene and terpenoid, thymoquinone and its derivatives, has been identified as the main active constituent.¹²

Actions

Digestive stimulant, carminative, anthelmintic, gastroprotective, hepatoprotective, emmenagogue, galactagogue, hypoglycaemic, diuretic,

hypolipidaemic, antihypertensive, anticoagulant, diaphoretic, expectorant, anti-asthmatic, antiallergic, antimicrobial (antibacterial, antifungal, antiviral), antioxidant, anti-inflammatory, anxiolytic, immune modulator, anticarcinogenic, analgesic.

Pharmacological Activity

Most research regarding nigella has been done *in vitro*, and with animal models, plus a number of clinical trials are available. The focus of this monograph, where possible, is a selection of recent human clinical trials that used orally, either whole seeds, powdered seeds and their aqueous decoction or extract. Studies on isolated active constituents, nigella oil and preclinical studies are used sparingly.

Anti-inflammatory Activity

A 2021 systematic review and meta-analysis of randomised controlled trials was performed on the effect of nigella on biomarkers of inflammation and oxidative stress, which are involved in the development of many chronic disorders. Overall, the results imply that nigella consumption may decrease inflammatory response and oxidative stress markers. Included were a total of 10 randomised controlled trials where 630 participants consumed between 1g and 3g per day of nigella (as seed or seed oil) from six to 48 weeks. Trials included patients diagnosed with type 2 diabetes, obesity, metabolic syndrome, non-alcoholic fatty liver disease, rheumatoid arthritis and ulcerative colitis. The pooled findings showed that nigella significantly reduced biomarkers of oxidative stress and inflammation including serum high sensitivity C-reactive protein, tumour necrosis factor-alpha and malondialdehyde, and significantly increased total antioxidant capacity and superoxide dismutase (an enzyme in the defensive system against oxidative stress) levels. All of these molecules are widely used to assess the redox balance (the balance between oxidants (or pro-oxidants) and antioxidants) in different conditions.¹³

A recent study suggests that, due to its anti-inflammatory and antioxidant properties, nigella can be used as a complementary treatment to improve the management of several chronic diseases. The paper aimed to reveal nigella's potential as adjunct treatment in cardiovascular diseases, diabetes

and cancers that affect the blood, bone marrow and lymph nodes. *In vivo* and *in vitro* studies demonstrated nigella's positive effect against diabetes, hypertension and hypercholesterolemia, all of them associated with cardiovascular disease progression. It was also proved to have marked anti-proliferative, cytotoxic, pro-apoptotic and anti-metastatic effects, in both solid cancers and blood malignancies.¹⁴

Nigella can be used for psoriasis patients with a combination of ointment and oral doses having the best effect. Sixty patients with mild to moderate plaque and palmoplantar psoriasis (a variant of psoriasis that characteristically affects the skin of the palms and soles) were randomly divided into three groups: Group 1 (20 patients) were treated with nigella ointment, group 2 (20 patients) were treated with 500mg nigella capsules three times a day and group 3 (20 patients) were treated with the combination of ointment and capsule. The nigella ointment achieved a complete cure of psoriatic lesions and an excellent and good response in 65% of patients, with a relapse rate of 31% four weeks after cessation of treatment. Oral doses of nigella produced a good response in 50% of patients, with a relapse rate of 50% noticed four weeks after treatment cessation. The combination of nigella ointment and oral doses achieved complete cure of lesions, excellent and good responses in 85% of patients, with a relapse rate of 18%.¹⁵

Cardiovascular Activity

A recent human study found that nigella may have some beneficial therapeutic effects in the treatment of high cholesterol however further investigations, with a larger sample size, are necessary. In this randomised, placebo-controlled clinical trial 88 people with high cholesterol received either nigella capsules (2g nigella seeds per day for four weeks) or placebo. A significant decrease was observed in the concentration of total cholesterol, low density lipoprotein (LDL) and triglyceride.¹⁶

In an earlier study, eight weeks of aerobic training (three days a week) plus nigella supplementation improved lipid parameters, improved high density lipoprotein (HDL) cholesterol and impaired LDL cholesterol in sedentary overweight females. In this randomised, double-blind controlled trial 20 sedentary (for at least two years) overweight

females were divided into two groups and assigned to 2g crushed nigella seeds per day for eight weeks or a placebo. All participants were asked not to change their usual daily diet. Supplementation with nigella lowered total cholesterol, triglycerides, LDL cholesterol and body mass index and increased HDL cholesterol and VO2 max which refers to the maximum amount of oxygen that a person can utilise during intense exercise. This measurement is generally considered the best indicator of cardiovascular fitness and aerobic endurance. The authors postulated that nigella's mechanism of action may be due to choleric and antioxidant activity either by reducing the synthesis of cholesterol, or by decreasing its reabsorption from the small intestine. They said it may also activate LDL receptors by decreasing intracellular cholesterol, which leads to rapid clearance of LDL cholesterol from blood circulation. "The effect of nigella on increasing cholesterol secretion in the bile is another probable mechanism, which can enhance its cholesterol lowering properties," they said.¹⁷

A meta-analysis which gathered data from randomised controlled trials suggests that short term treatment with nigella can significantly reduce systolic blood pressure and diastolic blood pressure levels. The eight trials covered a diverse group of patients with varying baseline blood pressures, and yielded a range of results. Doses ranged from 0.5 to 2g per day.¹⁸

A randomised, double-blind, placebo-controlled trial found that the daily use of nigella for two months may have a blood pressure lowering effect in patients with mild hypertension. There were 119 participants who were randomised into three groups: a placebo and two test groups that received 100 and 200mg of nigella seed extract twice a day. Treatment groups showed a significant reduction in systolic and diastolic blood pressure in a dose dependant manner. Nigella also caused a significant decline in the level of total and low LDL cholesterol relative to baseline data.¹⁹

Antidiabetic and Metabolic Syndrome Activity

The findings of a 2019 systematic review suggest that nigella can be used as an adjuvant for oral antidiabetic drugs in diabetes control. In seven articles nigella was shown to significantly improve laboratory parameters of hyperglycaemia and

diabetes control after treatment, with a significant fall in fasting blood glucose, blood glucose level two hours after meals, glycated haemoglobin and insulin resistance, and a rise in serum insulin.²⁰

A recent systematic review and meta-analysis concluded that nigella could be a suitable choice in managing the complications of type 2 diabetes although future research is necessary. Nigella showed promising results for its effectiveness on glucose homeostasis and serum lipids. Seven trials, including 505 patients, were included in the meta-analysis of glycaemic and serum lipid profile end points. Participants were given between 0.5 to 2g per day of nigella seed or 1 to 5mL per day of nigella oil over two to 12 months. Supplementation with nigella significantly improved fasting blood sugar, haemoglobin A1c (HbA1c - a blood test that is used to help diagnose and monitor people with diabetes), total cholesterol and LDL cholesterol.²¹

A recent placebo-controlled trial found that long term supplementation with nigella improves glucose homeostasis (the balance of insulin and glucagon to maintain blood glucose) and enhances the antioxidant defence system (oxidative stress plays an important role in the development of diabetes) in type 2 diabetic patients treated with oral hypoglycaemic drugs. In the study 114 type 2 diabetic patients, on standard oral hypoglycaemic drugs (glibenclamide, metformin, rosiglitazone), were assigned into two groups. Half received activated charcoal as placebo and half received 2g of nigella powder in capsules of 500mg, daily, for one year in addition to their standard medications. In a previous study the same researchers found that in type 2 diabetics three months' supplementation with nigella, in combination with oral hypoglycaemic drugs, had glucose lowering effects.²²

Treatment with 2g per day of nigella seed significantly reduced levels of fasting blood glucose and serum uric acid after 28 and 42 days in poorly-controlled diabetics who were taking oral hypoglycaemic drugs.²³

A study conducted in menopausal women to determine the metabolic impact of nigella found that it exerts a protective effect by improving lipid profile and blood glucose, which are at a higher risk to be elevated during the menopausal period. Thirty menopausal women were given either 1g of nigella

after breakfast for two months or placebo. The treatment group showed significant improvement in total cholesterol, triglycerides, LDL cholesterol, HDL cholesterol and blood glucose.²⁴

The results of a clinical study indicate that a dose of 2g per day of nigella might be a beneficial adjuvant to oral hypoglycaemic agents in type 2 diabetic patients. A total of 94 type 2 diabetic patients, who were taking oral hypoglycaemic drugs, with poor glycaemic control (defined as two readings of glycosylated haemoglobin (HbA1c) of greater than 7%, conducted three months apart) were recruited and divided randomly into three dose groups. Nigella capsules were administered orally in a dose of 1, 2 and 3g per day for three months. Significant improvement in glycaemic control (fasting blood glucose, HbA1c, insulin resistance) was found for the 2g per day dose. The results were not significant at 1g per day and no additional improvement was found for the 3g per day dose.²⁵

Thyroid Activity

Nigella could be considered as a beneficial herbal supplement in the management of Hashimoto's disease (an autoimmune disorder that can cause hypothyroidism, or underactive thyroid, and rarely, hyperthyroidism) and related metabolic abnormalities, alongside disease specific medications such as levothyroxine. Hashimoto's disease is associated with serious alterations in serum lipids and glucose homeostasis. Forty patients with Hashimoto's disease participated in the trial and were randomly allocated into two groups of intervention and control receiving powdered nigella or placebo daily for eight weeks. Treatment with nigella significantly reduced body weight and body mass index. Serum concentrations of LDL cholesterol and triglyceride also decreased in the nigella group, while serum HDL cholesterol significantly increased after treatment with nigella. None of these changes were observed in the placebo treated group.²⁶

Respiratory (including COVID-19), Antiallergic and Asthma Activity

Nigella has been the subject of exciting studies investigating COVID-19 prevention and treatment. A 2021 contemporary review concluded that "a lifestyle combined with exercise training and

[nigella] supplementation can be effective in reducing COVID-19 mortality". The authors said recent studies have shown that nigella can play a therapeutic role in COVID-19 by strengthening the immune and respiratory systems as well as inhibiting COVID-19 receptors.²⁷

The medicinal properties of nigella as a healing remedy for the treatment of respiratory and allergic diseases were evaluated in a 2019 review. In summary, nine clinical studies showed potential efficacy of nigella on asthma outcomes and biomarkers. It was shown that nigella significantly improved the clinical symptoms of allergic complaints in humans by inhibition of histamine release and possibly by non-selective blocking of the histamine receptors.²⁸

A recent literature review on the medicinal benefits of nigella in bronchial asthma found that it could be beneficial in alleviating airway inflammation, and the control of asthma symptoms, but the evidence remains "scanty". Well-designed, large clinical studies are required in the future to assess the clinical use of nigella in asthma. Seven clinical studies showed improvements in different asthma outcomes including symptoms, pulmonary function and laboratory parameters. Three randomised double-blinded placebo-controlled clinical trials and two randomised single-blinded placebo-controlled clinical trials, using crushed nigella seed powder or oil/aqueous extract, showed an improvement in clinical symptoms and pulmonary function tests in adult asthmatics. A randomised double-blind clinical trial showed a short bronchodilatory effect in patients with asthma after administration of a single dose of nigella (see the reference for details on each study). There were also fourteen preclinical studies describing multiple effects of nigella in animal or cellular models of asthma including bronchodilation, antihistamine, anti-inflammatory and immunomodulatory effects.²⁹

The use of nigella nasal spray can relieve symptoms in patients with chronic rhinosinusitis without nasal polyps. In a randomised clinical trial, 65 patients with mild to moderate chronic rhinosinusitis were divided randomly into two parallel groups receiving either two puffs per day of nigella nasal spray (equivalent to 1g per day of nigella) or placebo for eight weeks. Nigella nasal spray significantly improved symptoms

compared to placebo. The authors suggested a comparison of the results of nigella and steroid nasal sprays in patients with chronic rhinosinusitis.³⁰

Nigella was shown to be helpful as an adjuvant therapy for allergic rhinitis as it increased CD8 levels (a type of immune cell), as well as an increase in phagocytic and intracellular killing activities of leukocytes in patients helping with their symptoms. Twenty-four patients with allergic rhinitis and sensitivity to house dust mites, and a control group of eight healthy volunteers, were treated with allergen-specific immunotherapy in conventional doses for 30 days. After a month of immunotherapy 12 of the 24 patients and the eight healthy volunteers were given nigella seed (2g per day orally) for 30 days. The remaining 12 patients continued only on immunotherapy during the same period. The other seven patients received placebo. There was a statistically significant increase in the phagocytic and intracellular killing activities of types of immune cells of patients receiving specific immunotherapy, especially after the addition of nigella. The CD8 counts of patients receiving specific immunotherapy plus nigella significantly increased compared to patients receiving only specific immunotherapy.³¹

Seasonal allergic rhinitis was studied in 20 patients, with daily dosages of 250mg of seeds administered across 15 days, and symptom severity was significantly reduced.³²

Nigella has shown a prophylactic effect on chemical war victims. In a double-blind, placebo-controlled clinical trial researchers examined the effect of nigella on chemical war victims exposed to sulphur mustard gas during the 1980 to 1988 Iran-Iraq War. Sulphur mustard gas is an alkylating blistering agent used in chemical warfare. It damages epithelial tissues in the skin, eyes and respiratory tract, and it causes lung damage that can lead to asthma-like symptoms and chronic obstructive pulmonary disease (COPD). Forty chemical war victims were randomly divided into a control group and study group. For two months, the 20 men in the study group received a daily dose of 0.375mL/kg body weight of nigella seed extract with a concentration of 50mg per mL of nigella together with a glucose solution in syrup form and the other group received placebo. All respiratory symptoms, including chest

wheezing and pulmonary function test values significantly improved, and the use of inhalers, oral beta-agonists and oral corticosteroids in the study group decreased at the end of the study. The researchers postulated that the mechanism of action may involve anti-inflammatory effects on the respiratory tract.³³

Anticarcinogenic Activity

There is considerable interest in the potential of nigella as an anticancer therapy and this is an area of current research. A 2021 evidence-based review on the nutritional value and preventive role of nigella, and its main component thymoquinone, in cancer found that in preclinical research it exerts significant antiproliferative effects against various types of cancer, such as liver, colon, breast, cervical, lung, pancreatic and prostate cancer. Few clinical studies have been performed and they mainly use the constituent thymoquinone. More human clinical research is needed to confirm this.³⁴

In one study nigella showed a decrease in incidence of febrile neutropenia (low level of neutrophils, a type of white blood cell) in children with brain tumours. In this randomised study 80 children (aged two to 18 years) with brain tumours, who were undergoing chemotherapy, received either 5g of nigella (seeds added to the diet) daily throughout treatment while controls received nothing. The majority of children (95%) in the intervention group took the seeds for three to nine consecutive months. The nigella group experienced fewer febrile neutropenia episodes, the duration of hospital stay during these episodes was shorter and loss of weight was less severe.³⁵

In an earlier preliminary study children (aged two to 18 years old) with acute lymphoblastic leukaemia were treated with nigella. Patients were randomly divided into three groups: group I received conventional chemotherapy, group II received conventional chemotherapy plus L-asparaginase (for additional cytotoxic activity) and group III received conventional chemotherapy and nigella powdered seed (40mg/kg/day). This induction treatment was due to last for three months and then maintenance therapy followed. The researchers were investigating whether nigella could replace L-asparaginase in the treatment of this condition.

All patients who completed treatment achieved complete remission (i.e. similar efficacy across all groups). Group III was described as the best treatment due to similar beneficial therapeutic effect and low incidence of side effects.³⁶

Cognitive Health and Mood Activity

In a recent clinical trial 40 healthy elderly volunteers were randomly assigned to take 500mg crushed and encapsulated nigella, or placebo, twice daily for nine weeks. Compared to baseline the test group experienced significant differences in scores on various measures of memory, attention and cognition. The authors suggested that additional studies should be undertaken with large populations of patients with Alzheimer's disease, over a longer period of time, to determine if nigella can enhance memory, attention and cognition in that population.³⁷

Another clinical trial found the use of nigella as a nutritional supplement could stabilise mood, decrease anxiety and positively influence cognition. Forty-eight young men (aged 14 to 17 years old) were randomly assigned to take 500mg crushed and encapsulated nigella, or placebo, daily for four weeks. Compared to baseline there was a statistically significant improvement in mood scores for the nigella group and a statistically significant decrease in anxiety scores in the treatment group. Both immediate free recall and delayed recall improved significantly in the treatment group only. The authors postulated that cognition may have improved due to the improvements in anxiety and mood, and suggested that further long-term studies are warranted.³⁸

Hepatoprotective Activity

A 2022 systematic review and meta-analysis supports the evidence that nigella supplementation is beneficial for the treatment of non-alcoholic fatty liver disease (NAFLD) without causing adverse effects although further high-quality clinical studies are needed to confirm these results. This study aimed to assess the efficacy of nigella in regulating various metabolic parameters in NAFLD patients. Four randomised controlled trials were included.³⁹

Nigella could be used in the early stages of NAFLD, in order to prevent its life-threatening complications, because it improves biochemical and fatty liver changes in NAFLD patients. A randomised controlled

trial was conducted with 70 NAFLD patients who were given either 1g of nigella twice a day or placebo. After 12 weeks treatment with nigella, body weight and body mass index decreased significantly. There was also a remarkable reduction in aminotransferase levels after treatment with nigella. Overall 57.14% of the patients had normal fatty liver grading on ultrasound after 12 weeks treatment with nigella when compared to placebo.⁴⁰

A recent study has shown that a 2g per day consumption of nigella can reduce inflammatory biomarkers in patients with NAFLD however further studies are needed. In this randomised, double-blind, placebo-controlled clinical trial, 50 NAFLD patients received either 2g per day of nigella or placebo. At the end of the study there was a reduction in inflammatory biomarkers, high sensitive C reactive protein and nuclear factor together with a significant reduction in hepatic steatosis percentage in patients taking nigella.⁴¹

Antimicrobial Activity

Nigella possesses clinically useful anti-*Helicobacter pylori* activity in comparison to triple therapy (the first-line treatment for *H. pylori* infection). The authors suggested that further clinical studies combining nigella with antibiotics are required. The study was undertaken to evaluate the efficacy of nigella in eradicating *H. pylori* infection in non-ulcer dyspeptic patients. The study was conducted on 88 people found positive for *H. pylori* infection with dyspeptic symptoms. They were randomly assigned to four groups, receiving triple therapy (clarithromycin (antibiotic), amoxicillin (antibiotic), omeprazole (a proton pump inhibitor that decreases the amount of acid produced in the stomach)), 1g of nigella and 40mg omeprazole, 2g of nigella and 40mg omeprazole or 3g of nigella and 40mg omeprazole. A negative *H. pylori* stool antigen test, four weeks after the treatment ended, was considered eradication. The results showed that nigella, in a dose of 2g per day when given along with 40mg per day of omeprazole, possesses clinically useful anti-*H. pylori* activity, comparable to that of the standard triple therapy. The doses of 1g per day and 3g per day of nigella were less effective, but the *H. pylori* eradication rate achieved with these doses was similar to that obtained with a single antibiotic. The authors suggested that further

clinical trials, using nigella in combination with one of the antibiotics commonly used for eradication of *H. pylori*, could prove to provide more efficient therapy that is relatively safer and less expensive.⁴²

The use of nigella as an anthelmintic has been studied in children with tapeworm infections. The study found that the seed was beneficial at a dose of 40mg/kg with no adverse effects.⁴³

Digestive Activity

As nigella is a culinary herb it has similar properties for the digestive system as other spices. This makes it helpful for easing wind or digestive spasm, bloating and associated colicky pains. It can be added to cooking for these actions. A recent review on the gastrointestinal effects of nigella found that clinical studies have indicated preventive effects, as well as relieving effects, on various gastrointestinal disorders. Therefore it has both preventive and therapeutic effects on gastrointestinal diseases. Nigella may have an important role in modulating the inflammatory response of the gastric tissue.^{44,45}

Galactagogue Activity

In India nigella is frequently used to promote the production of breast milk. A 2020 systematic review into the galactagogue properties of nigella concluded that it has galactagogue effects in animals, as demonstrated by serum prolactin level, breast tissue changes, milk composition and milk production however further research should be conducted to study the effect of this herb on humans.⁴⁶

Women's Health Activity

The results of a 2020 study indicated that nigella reduces the severity of symptoms of premenstrual syndrome. In this double-blind, randomised clinical trial study, 84 students with symptoms of premenstrual syndrome were randomly divided into two groups of case and control. They received either 500mg oral nigella capsules, or placebo, three times a day from seven days before the onset of menstrual bleeding to the first three days of menstrual bleeding for two cycles. After using nigella the overall severity of premenstrual syndrome symptoms were significantly reduced in the intervention group at the end of the first and second months.⁴⁷

A recent study evaluated the efficiency of a combination of nigella and chastetree (*Vitex agnus-castus*) with citalopram (used to treat depression) in the control of hot flashes in healthy menopausal women. The eight-week, double-blind, randomised, placebo-controlled study was performed among 46 women, aged between 40 and 60 years, experiencing an average of more than four hot flashes per day. Based on the results the addition of a combination of nigella and chastetree to the citalopram may be a potential clinical application for improving therapeutic outcomes however larger trials are warranted.⁴⁸

Male Infertility Activity

Nigella significantly improved sperm count, viability, motility and morphology as well as hormone levels in 40 infertile men who took 2g per day for three months.⁴⁹

Addiction Activity

A human clinical study found that nigella is effective in the long-term treatment of opioid dependence. The authors said it also assists with the infections and weakness which a majority of addicts suffer from. In this study 20 known addicts had decreased signs and symptoms of opioid dependence after taking 500mg of nigella three times a day for up to 12 days.⁵⁰

Kidney Stone Activity

Nigella demonstrated significant positive effects on the disappearance, or reduction of size, of kidney stones in a recent study. Sixty patients with renal stones were randomly enrolled in two arms of a randomised, triple-blind, placebo-controlled clinical trial. The patients were treated with nigella capsules (500mg), or placebo, two times a day for 10 weeks. In the nigella group 44.4% of patients excreted their stones completely, and the size of the stones remained unchanged and decreased in 3.7% and 51.8% of patients, respectively. In contrast, in the placebo group, 15.3% of the patients excreted their stones completely, 11.5% had reduction in stone size, 15.3% had increase in stone size and 57.6% had no change in their stone size.⁵¹

Nigella decreased iron overload-induced oxidative stress and haemolytic anaemia (a blood condition that occurs when red blood cells are destroyed

faster than they can be replaced) in a recent study in children. It is also a promising treatment for thalassemia (an inherited blood disorder that causes the body to have less haemoglobin than normal) where it can increase the therapeutic effects, and alleviate the side effects, of iron chelation therapy. Twenty-five blood transfusion-dependent children (aged six to 18) with beta-thalassemia major received oral nigella powder (2g per day added to foods or drinks) for three consecutive months. Nigella significantly increased blood haemoglobin, white blood cell count and neutrophils and significantly enhanced cell-mediated immunity. Iron overload-induced oxidative stress significantly decreased.⁵²

Indications

- Allergies, allergic rhinitis, asthma, fever, colds, bronchitis, coughs, chest congestion
- Type 2 diabetes, metabolic syndrome, obesity, low thyroid function
- High cholesterol, hypertension
- Reducing the symptoms of opioid withdrawal
- Gastrointestinal problems such as dyspepsia, poor appetite, flatulent colic, diarrhoea, gastrointestinal infections, Crohn's disease, intestinal worms, poor liver function, non-alcoholic fatty liver disease
- Dysmenorrhoea, menopause
- Polycystic ovarian syndrome, male infertility, breast milk production
- Externally for eczema and swollen joints

Energetics

Warming, oily, bitter, aromatic.⁵³

Use in Pregnancy

Nigella is likely to be safe when taken in usual dietary amounts however the safety of larger doses has not been scientifically evaluated so medicinal

doses are contraindicated. It has traditionally been used as an emmenagogue and it is suggested that large doses should be avoided in women trying to conceive.⁵⁴

Contraindications

Caution is advised in patients with immune disorders although dietary intake appears safe.⁵⁵

Drug Interactions

Caution is advised with anticoagulant (e.g. blood thinners such as warfarin) /antiplatelet (e.g. aspirin) drugs due to theoretical additive effects. Caution advised with immunosuppressant drugs (e.g. corticosteroids such as prednisone) due to a theoretical decreased drug effect. While it may not be clinically significant monitor with analgesics (e.g. nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen), anticonvulsants, antidiabetic (e.g. metformin), antihypertensive (e.g. thiazide diuretics, calcium channel blockers, ACE inhibitors, angiotensin II receptor antagonists (ARBs), beta blockers) and central nervous system depressant (e.g. benzodiazepines and barbiturates used to treat insomnia, anxiety, panic attacks and seizures) drugs due to theoretical additive effects. The combination may be beneficial with antineoplastic drugs (used to treat cancer), cisplatin and doxorubicin (chemotherapy medications) however medical supervision is recommended.⁵⁶

Administration and Dosage

Liquid Extract:	1:2
Alcohol:	70%
Weekly Dosage: ⁵⁷	25 to 90mL

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