

# ***Nigella sativa* (black seed) is an effective herbal remedy for every disease except death – a Prophetic statement which modern scientists confirm unanimously: A review**

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Accepted 11 April, 2016

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## ABSTRACT

The use of plants for the treatment of human illnesses is since time-immemorial. According to a hadith narrated by Ibn 'Abbâs (ra), Prophet Muhammad (ﷺ) said that Prophet Sulaymân (as) recorded the names and uses of many herbal remedies after finishing the construction of his temple (Ibn 'Asâkir, *MukhtaşarTâreekhDimashq*, 3:393). Prophet Muhammad (ﷺ) too made specific statements on 65 medicinal plants, herbs and shrubs while making prescriptions for the sick people. Among the plants he prescribed *Nigella sativa* is the most important. About this plant he said, "Black seed is a remedy (cure) for all diseases (ailments) except death" (An authentic hadith narrated by Abu Hurayrah (ra) and recorded by Bukhari, Muslim, Ahmad and Ibn Majah). This Prophetic statement generated tremendous interest among the world's scientific community. Their question was, how an unlettered man of the desert without having any pen and paper, could make such a wonderful statement on medical science and pharmacy. Moreover, the Prophet (ﷺ) made the statement at a time when scientific concept about the use of medicinal plants for the treatment of human illnesses and alleviation of their sufferings was not developed until many centuries later. The statement finally led the scientific community to carry out extensive phytochemical and biological investigations on the black seed and its oil. The researchers conducted laboratory experiments using intact animals and clinical trials using human volunteers to substantiate the validity of the statement. However, it is amazing that the researchers after carrying out hundreds of researches around the globe finally concluded that the Prophet's statement is one hundred per cent true. Muslims consider black seed an effective Prophetic medicine since it was recommended by Prophet Muhammad (ﷺ) over 1400 years ago. The Prophet (ﷺ), in his divine wisdom, had made this very important statement. In this paper an effort has been made to discuss the results of published scientific researches carried out on the black seed and its oil by scientists of the world to confirm the truth of the statement.

**Keywords:** *Nigella sativa*, *Nigella sativa* oil and extract, black seed, medicinal plant, thymoquinone.

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## INTRODUCTION

The following statement of Prophet Muhammad (ﷺ) inspired the authors to write this review paper on *Nigella sativa* Linn (black seed). Consequently an extensive literature search has been made to find out the published

information on the scientific researches carried out on *Nigella sativa* Linn. in the world. The aim of this review is therefore, to prove the truth and validity of the Prophet's statement on black seed. Another earliest written

reference to black seed is found in the book of Isaiah in the Old Testament (Isaiah 28: 25, 27 NKJV), where it is referred as “ketzah”, a spice for bread and cakes that can be used in many ways.

Abu Hurayrah (ra) narrates that Prophet Muhammad (ﷺ) said,

“Use this black seed regularly; because, it is a remedy (cure) for every disease except death.”  
(Reference: Sahih Al-Bukhari 71:591, 592; Sahih Muslim 26: 5489).

We all know that like all other Prophets of God, nothing but truth came out from the mouth of Prophet Muhammad (ﷺ). The Prophet (ﷺ) never spoke a single lie in his entire lifetime of 63 years. That is why he earned the title ‘Al-Amin’ meaning Trustworthy from everybody irrespective of their religious faiths and tribes. So his statements on healing are also true, and modern medical science is now proving it through research after 14 centuries. One wonders how an unlettered man of the desert without having any pen and paper, could make such a wonderful statement on medical science? About Muhammad (ﷺ) Almighty God (Allah) says in the Holy Qur’an, “He does not speak anything of his own desire...” (Surah An-Najm 53:3). In other words, whatever he speaks are nothing but divinely inspired words. Since Islam is a complete and divine way of human life; it must contain some aspects of health and wellness, sickness and cure, and disease and treatment in it. That is why God (Allah) inspired Muhammad (ﷺ) to make over 1000 statements of healing for the benefit of man for his transient stay on the earth; because man needs to remain well, free from sickness to fulfill his brief mission on earth. However, it is very amazing that not a single statement of the Prophet (ﷺ) on healing is found to be contradictory to the basic principles of modern medical science and pharmacy.

## BACKGROUND AND HISTORY OF THE PLANT *NIGELLA SATIVA* LINN.

### Identification of the plant

The Arabic name of *Nigella sativa* Linn. is Habbatus Sauda or Habbat al Baraka’. It is also known around the world by many other names because of its ancient popular history and medicinal value. It is known as black caraway, roman coriander, carvi (French), schwarzkummel (German), kalonji (Hindi/Urdu), kezah (Hebrew) chernushka (Russian), corek-out (Turkish), siyahdaneh (Persian) etc.

It is an annual herbaceous plant. The name *N. sativa* comes from the Latin word, nigellus, meaning black. It is translated as ‘Seeds of Blessing’. Black cumin has even been described as a “miracle herb”. The seed is called black cumin or black seed in English, while in old Latin it



Figure 1. *Nigella sativa* seed.



Figure 2. *Nigella sativa* plant flower.

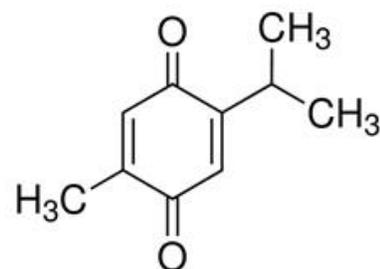


Figure 3. Bioactive compound Thymoquinone (TQ) from *Nigella sativa* extract.

was called ‘Panacea’ meaning ‘cure all’ (Figures 1 to 3). It is known as ‘Kalijeera’ (Bangladesh), ‘Kalonji’ (in India) and ‘Hak Jung Chou’ (China). The common English name for *Nigella sativa* is Love in a Mist. *Nigella sativa* is a member of the Ranunculaceae family (Khan et al., 2011).

### *N. sativa* has been used by millions of people throughout the ages

Black cumin seeds have been used to successfully keep people super healthy – for over 3,300 years. It is one of

the earliest cultivated plants in human history, which means it was one of the early providers of life. The miracle seed has been used by millions of people to treat various ailments for centuries in different parts of world especially, in Mediterranean, Middle East, and India, Pakistan, Bangladesh and also in Europe. Black seeds have also been used for cooking for thousands of years.

### Published books and articles on black seed

Information from the United States data bank states that more than 150 books and articles have been written in recent times by professionals about the physical and chemical properties of black seed. Likewise, extensive research continues in many universities and health research centers in the Islamic world as well as in Western countries with regard to the many healing qualities of black seed. Recently the following seven books have been published:

1. "Healing Power of Black Cumin" by Sylvia Luetjohann, Twin Trees, WI: Lotus Light Publications, 1998, A Handbook on Oriental Black Cumin Oils, Their Healing Components and Special Recipes, 156 pages.
2. "Black Cumin: The Magical Egyptian Herb for Allergies, Asthma, Skin Conditions and Immune Disorders" by Dr. M. Saleh (Egypt) and P. Schleicher (Germany), Rochester, VT: Healing Arts Press, 2000, 90 pages.
3. "Black Seed: The "Miracle Herb" of the Century" by W. G. Goreja, published by Amazing Herbs Press, Jan 1, 2003, 54 pages.
4. "Black Seed - A Cure For Every Disease Book", Sweet Sunnah, A Cure for Every Disease But Death - A comprehensive guide to understanding and application of one of the most powerful healing herbs in the world, 40 Pages.
5. "The Benefits of Black Cumin, Black Cumin / Black Seed / Nigella Sativa - Cure to All Diseases Revealed" by C ALBER, published by Tulip Publisher Group, 08/01/2012.
6. "Black Seeds (*Nigella sativa*) - The Miraculous Healing Power for all Diseases", Publisher: Um Hurairah, 01/01/2012.
7. "The Black Cumin Cancer Protocol" - Step-by-Step Guidelines by Maria Hurairah, Barnes & Noble, 07/17/2014.

### ANCIENT AND CURRENT USES OF BLACK SEED AS PREVENTIVE AND CURATIVE REMEDIES

It has been reported that Hippocrates, Dioscorides and Pliny the Elder all showed appreciation for the preventive and curative powers of black seed (Black seed, the Magical Herb, Shifa Lifeherbs International (UK), Suite 282, Parkers House, 48 Regent Street. Cambridge CB2

1FD. United Kingdom, [http://www.shifalife.com/etrading/black\\_seed.jsp](http://www.shifalife.com/etrading/black_seed.jsp)). Hippocrates (5th century B.C.) regarded *N. sativa* as a valuable remedy in hepatic and digestive disorders. His list of remedies includes the treatment of snakebites and scorpion stings, old tumours, abscesses, and skin rashes. (<http://theblessedseed.com/learn-more/history/>). Greek physician, Dioscorides used black cumin seed to treat headaches, nasal congestion, toothache and intestinal parasites (Hodges, 2016). He also reported that they were used as a diuretic to promote menstruation and increase milk production. He described the plant under the name, melanthion, in his 5-volume pharmacology "De MateriaMedica" which was used as a reference for healing with herbs in the Middle Ages (<http://theblessedseed.com/learn-more/history/>).

Ibn Sina (980-1037) in his most famous book, "The Canon of Medicine," refers to black seed as the seed "that stimulates the body's energy and helps recovery from fatigue or dispiritedness." His views, still holds true for Tibb (Islamic Medicine) health practitioners today (<http://theblessedseed.com/learn-more/history/>). Black seed has been an essential ingredient in Eastern medicine as well, especially Ayurveda. For thousands of years, the seeds, oils and extracts of *N. sativa* have been used as an anticancer agent by Unani, Ayurveda and the Chinese systems of medicine (Khan, 2011).

The Muslim scholar al-Biruni (973-1048), who composed a treatise on the early origins of Indian and Chinese drugs, mentions that the black seed is a kind of grain called 'alwanak' in the Sigzi dialect. Later, this was confirmed by SuharBakht who explained it to be habb-i-Sajzi (viz. Sigzi grains). This reference to black seed as "grains", points to the seed's possible nutritional use during the tenth and eleventh centuries (<http://theblessedseed.com/learn-more/history/>).

In the Greco-Arab/Unani-Tibb system of medicine, which originated from Hippocrates, his contemporary Galen and Ibn Sina, black seed has been regarded as a valuable remedy in hepatic and digestive disorders and has been described as a stimulant in a variety of conditions, ascribed to an imbalance of cold humours (<http://www.x35energy.com/history-black-seed.html>).

There have been reports of these "health giving" seeds used throughout history in the Middle East, the Mediterranean and India – from minor headaches and skin irritations. It is regarded throughout the entire Middle East as one of the most powerful anti-inflammatory herbs ever existing (<https://www.facebook.com/1689633187947465/photos/pcb.1691173497793434/1691172211126896/?type=3>). The seed is believed to be indigenous to the Mediterranean but is cultivated in other parts of the world including North Africa, the Middle East and parts of Asia. Traditionally, black cumin has been used for immune-system support, well-being, digestive health, respiratory issues, kidney and liver support, and heart health. In Asia and the Middle East, black cumin seeds have long been used to treat asthma, bronchitis, rheumatism and other

inflammatory diseases.

### **Clinical use of black seed oil in the West**

In the West, the effect of the oil has been used for a long time against wind, dysentery, stomach and lung disease, jaundice, diuretic problems and to increase a nursing mother's milk. According to Dr. Schleicher, the reason why this oil is so exceptional is that its component parts act in unison to produce an optimum effect for so many complaints. However, one has to make sure that only the pure and tested oil is being used. Schleicher's colleagues have reacted very positively after the publication about his success with patients who have used the black seed oil. Professor G. Rietmuller, Director of Institute for immunology at the University of Munich believes that this plant extract works positively on the immune system and could be used as a bio-regulator. Professor Michael Meurer of the Dermatology Clinic in Munich has for a long time been convinced about the success of this oil. From his experience the oil helps stop inflammation and helps with neurodermitis (<http://www.healthymuslim.com/articles/mdhpn-black-seed-oil-nigella-sativa-and-its-disease-preventing-effects.cfm>).

### **Ancient uses of black seeds by ancient Egyptians**

It has been reported that Cleopatra used it as its health beauty giving quality. Queen Nefertiti used black seed oil to bring luster to her hair and nails. Hippocrates used it to assist with digestive and metabolic disorders. King Tutankhamen kept a bottle of black seed oil in his tomb, presumably to protect him in the afterlife. Physicians in Pharaohs' times used black seed as a remedy for colds, headaches, respiratory and digestive disorders, toothaches, infections, inflammatory disorders and allergies (GreenMedInfo January 3, 2013).

### **Clinical use of black seed by Unani and Ayurvedic physicians**

All eminent Unani and Ayurvedic physicians of the past and present have written a lot on the medicinal benefits and healing properties of black seed. Its traditional applications range from skincare to digestion and fertility. There has not been a period among the Muslims of the world, when its use was ever stopped. At all times, the seed was utilized with the belief and faith that benefits will be derived in practicing the Traditions (Sunnah) of the Prophet (ﷺ) with regard to the use of black seed. A tincture of the seeds has traditionally been used to treat indigestion, loss of appetite, diarrhea, parasitic infections and skin problems. An external application of black cumin oil has even been used as an antiseptic and roasted

seeds as a treatment to stop vomiting (Ahmad et al., 2013)

### **Summary of the current clinical uses of black seed and its oil**

Black cumin seed oil is quickly becoming the best health product for millions of people internationally (Clark, 2014). The majority of our health problems have the same causes-infection by micro-organisms such as bacteria, viruses, parasites and fungi. When using allopathic medicines each symptom is treated individually and usually with synthetic chemically manufactured medicines.

Black seed is found effective at treating the body as a whole and fights the actual cause of the symptoms. Black seed regulates too weak or too strong reactions of the immune system and is excellent for treating chronic, allergic and hormonal diseases. It uses are many as well as its benefit. Black seed supports metabolism, improves digestion, and lowers blood sugar levels. It is used to dispel worms and parasites from intestinal track. It is useful in soothing bronchitis and coughs. It increases body tone, stimulates menstrual periods, increases the flow of breast milk, provides quick energy, increases sperm count, calms the nervous system, encourages hair growth and retards hair fall out, prevents skin wrinkling, and much more. Studies have shown that black seed oil contains antioxidants that protect the body from free radicals. Additionally black seed oil is a tremendous source of essential fatty acids. Adding this natural remedy to your daily routine is an excellent way to maintain great health (<http://www.blackseedproducts.com/faqs/9-what-are-the-benefits-of-black-seed.html>).

Black seed oil is dark in colour with a pungent herbal scent that is popular in preparations for acne, burns and wrinkles and is often used in Middle Eastern cooking as a spice or a topping. Black seed is cultivated in Russia, Turkey, Egypt, Arabia, Oman, Ethiopia, Middle East, India, Bangladesh, France, and Germany (Larita, 2016). Black seeds are now used as skin care naturals. Some use it for healthy hair and nails and to restore good health. Skincare Naturals said that black seed is a wonderful oil to use in a Gardener's Skin Balm due to its healing, pain relief and skin conditioning properties.

Black cumin seed oil inhibits cancer cell activity and can even kill some types of cancer cells. Scientific research has shown that black seed oil is an effective treatment for cancer in animal studies. Black seed oil and its extract have powerful benefits for various inflammatory diseases including various types of cancer. Black cumin seed oil and its extract thymoquinone have powerful benefits for various inflammatory diseases including liver cancer, melanoma skin cancer, pancreatic cancer, cervical cancer, breast cancer, bone cancer, stomach cancer, lymphoma, prostate cancer, colon cancer, and

brain cancer (Thomas, 2014). Black cumin is a rich source of essential fatty acids – omega 3 and omega 6, the building blocks of cells, and used for relief of acne, psoriasis, eczema and pain (<http://www.essen\ialoilsof topeka.com/product/423>). The modern scientific research with the investigation of its anticancer activity has been conducted only for the last 20 years. Scientific databases like PubMed, Web of Science and Google scholar have summarized the current scientific information about the anticancer activities of *N. sativa* with their mechanisms of action.

*N. sativa* has been used as traditional medicine for centuries. The crude oil and thymoquinone (TQ) extracted from its seeds are effective against many diseases like cancer, cardiovascular complications, diabetes, asthma, kidney disease etc. It is effective against cancer in blood system, lung, kidney, liver, prostate, breast, cervix, skin with much safety (Khan et al., 2011). Scientists in Germany have confirmed the antibacterial and antimycotic effects of black seed oil (<http://www.blackseedproducts.com/faqs/11-has-there-been-any-scientific-research-done-on-black-seed.html>).

## RESULTS OF THE PHYTOCHEMICAL AND BIOLOGICAL STUDIES OF BLACK SEED

### Black seed contains over 100 phytochemical constituents

In one study it is reported that remarkably, black seed contains over 100 healing components, which work together to produce a synergetic effect. Out of this only sixty-nine have been characterized and identified. Research has shown that this complex interaction of over 100 components gives black seed tremendous synergistic power to support the immune system and strengthen the body's constitution in a way no single substance has ever been known to accomplish.

Dr. Michael Tierra LAC. O.M.D, author of *Planetary Herbology*, writes: "Black seed is truly a remarkable herb that has been used for over 3000 years. It contains over 100 valuable components. It is a significant source of essential fatty acids, proteins, carbohydrates and other vitamins and minerals. The seeds are also rich in sterols; especially beta-sitosterol which is known to have anti-carcinogenic activity" ([http://www.beautifulislam.net/black seed/black\\_seed\\_benefits\\_p.html](http://www.beautifulislam.net/black seed/black_seed_benefits_p.html)).

The active ingredients of black seed are thymoquinone, dithymoquinone, thymohydroquinone, nigellone, thymol and fixed oils. Mahfouz and El-Dakhakhny, prominent Egyptian researchers isolated the active principle nigellone from black seed's essential oil in 1959, which was responsible for black seed's broncho-dilating effect (Dawoud, 2015).

The magazine Food Chemistry found black seed to be high in proteins and amino acids. It contains 15 amino

acids including nine essential ones, carbohydrates, essential fatty acid (EFA) including linoleic, linolenic and oleic acids, vitamins A, B<sub>1</sub>, B<sub>2</sub>, C and niacin as well as calcium, sodium, potassium, iron, magnesium, zinc and selenium. A renowned scientist from Germany, Wagner writes: "Black seed oil has a rich composition of proteins, minerals, vitamins, enzymes, carbohydrates and fats. Almost all of its fat content is in the form of omega-3 and omega-6 fatty acids. These play a vital part in forming Prostaglandin (PG) E<sub>1</sub> which balances and strengthens the immune system giving it the power to prevent infections and allergies and control chronic illnesses."

The seed oil also contains beta sitosterol, myristic acid, palmitic acid, stearic acid, palmitoleic acid, oleic acid, linoleic acid (omega-6), linolenic acid (omega-3), arachidonic acid, proteins and vitamins B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>6</sub> and folacin. They also contain calcium, folic acid, iron, copper, zinc and phosphorous. The high content of phytosterols found in black cumin oil – are also necessary for the human body for natural production of hormones, provitamin D and bile acid – aiding in a prevention of endocrine disorders, immune deficiency and the number one killer disease (cardiac attack). Black seed is comprised of approximately 21% protein, 38% carbohydrates, and 35% plant fats and oils. These are the most essential nutrients, which are needed for sustenance.

The three natural phytochemical compounds in black seed oil that produce a tremendous benefit that researchers were very surprised to discover. These three compounds are thymoquinone (TQ), thymohydroquinone (THQ) and thymol (THY). The seed contains both fixed and essential oils, proteins, alkaloids and saponin (Ali and Blunden, 2003). Ghosheh et al. (1999) described the quantification of four pharmacologically important components: thymoquinone (TQ), dithymoquinone (DTQ), thymohydroquinone (THQ), and thymol (THY), in the oil of *N. sativa* seed by HPLC. Other bioactive compounds in the seed include  $\alpha$ -hederin, alkaloids, flavonoids, antioxidants and fatty acids.

### Pharmacological activities of black seeds and its oil

Scientist Wagner further writes that two of the most volatile oils found in black seed are nigellone and thymoquinone. Nigellone offers both anti-spasmodic and broncho-dilating properties which contribute to black seed's potency against respiratory ailments. It also acts as an antihistamine which helps to reduce the negative symptoms of allergy sufferers. Thymoquinone contains excellent anti-inflammatory and analgesic properties. It is also a strong antioxidant and helps cleanse the body of toxins" (Dawoud, 2015).

For upper respiratory conditions, at least a few of its constituents have shown an antihistamine-like action, which explains its positive effects for upper respiratory

diseases including asthma, bronchitis, and cough. The oils of the seed increase milk flow which explains its folk use as a galactagogue. In large quantities, however, the seeds have also been used for abortion (<http://www.blackseedproducts.com/faqs/9-what-are-the-benefits-of-black-seed.html>).

The oil of *N. sativa* is so beneficial due to its content of over a hundred components such as aromatic oils, trace elements, vitamins and enzymes. It contains 58% of essential fatty acids including omega 6 and omega 3. These are necessary for the forming of Prostaglandin E1 which balances and strengthens the immune system giving it the power to prevent infections and allergies and control chronic illnesses. Healthy cells are protected from viruses thus inhibiting tumors (<http://www.asianhealthsecrets.com/black-cumin-seeds/>).

Black seed oil contains about 0.5 to 1.5% volatile oils including nigellone and thymochinone which are responsible for its antihistamine, antioxidant, anti-infective and broncho-dilating effects. The healing secrets of black seed oil are due to medicinal properties such as immune-stimulant, anti-bacterial, antifungal, anti-ulcerative, anti-inflammatory, antioxidant, anti-tumourous, antipyretic, hypoglycemic, immunomodulatory, anti-hypertensive, antidepressant, antispasmodic, hepatoprotective, anti-parasitic etc (Javed, 2010).

Dr. Med. Peter Schleicher, an immunologist in Munich, who was nominated as the youngest member of the World Academy of Scientists in 1986, examined black seed oil in his institute to find new therapies for chronic illness and its effect. His findings are identical to those in previous studies by earlier researchers. Schleicher discovered by using black seed oil, valuable unsaturated fatty acids, for example linoleic and gamma linolenic acids, get into the organism. By that, it is possible to reach a synthesis of important immune regulating substances derived from prostaglandin E1. Linoleic acid stabilizes the cell membranes and prostaglandin has the effect of inhibiting inflammation. They stop the immune reactions that cause illnesses that could further lead to many chronic illnesses like acne, hay fever and even cancer (Wagner, nd).

### **Black cumin has at least 20 pharmacological actions**

Black cumin has a wide spectrum of pharmacological actions that have been supported by science. Some of them are anti-diabetic, anti-cancer, immunomodulator, analgesic, antimicrobial, anti-inflammatory, spasmolytic, bronchodilator, hepato-protective, renal protective, gastro-protective and antioxidant properties (Ahmad et al., 2013).

The seeds and oil have anti-inflammatory, analgesic, antipyretic, antimicrobial and anti-neoplastic activity. The oil decreases blood pressure and increases respiration. Treatment of rats with the seed extract for up to 12 weeks has been reported to induce changes in the haemogram

that include an increase in both the packed cell volume (PCV) and hemoglobin (Hb), and a decrease in plasma concentrations of cholesterol, triglycerides and glucose. The seeds are characterized by a very low degree of toxicity.

## **RESULTS OF THE MODERN SCIENTIFIC STUDIES USING LABORATORY ANIMALS, ISOLATED ANIMAL TISSUES AND ALSO HUMAN SUBJECTS**

### **Scientific studies on *N. sativa***

Black seed has been used for more than 2000 years for a wide array of diseases including diabetes, Alzheimer's disease and even migraines. Originally it was used for allergies, asthma and migraines, but as the world began to discover its many wonderful qualities, studies and research projects spread. In the last 50 years there have been more than 450 studies done on this miraculous seed. (<http://nigellasativa.weebly.com/black-cumin-protocol-for-diabetes.html>).

Professor Peter Schleicher, M.D., a renowned immunologist in Munich said, "Calling black cumin a magical cure would certainly be an exaggeration, but it is almost impossible not to exaggerate its effectiveness" (Saleh and Schleicher, 2000).

### **Highest number of scientific studies done on *N. sativa***

*Nigella sativa* is the only plant on the face of the earth on which highest number of studies had been carried out. In fact, since 1964, there have been 656 published, peer-reviewed studies referencing to involving black cumin – confirming what Middle Eastern and North African cultures have known for thousands of years (Ji, 2013). Up to now, there have been well over 600 peer-reviewed scientific articles related to the benefits of black seed oil ranging from its potential as a cancer treatment to its ability to reduce blood pressure and the symptoms of rheumatism (Seward, 2015).

### **500 university research projects on black seed so far submitted by students for the award of degrees**

*Nigella sativa* is the only plant on the face of the earth that has been investigated by a large number of modern scientists. Nearly 500 university studies conducted since 1959 have confirmed the effectiveness and traditional uses of this powerful seed. (<https://www.facebook.com/media/set/?set=a.1637492209849179..3>). Researches were also carried out at major international universities and articles published in various scientific journals documenting the astonishing results of the black seed.

### **Traditional uses of black seeds are supported by modern research**

With a long and amazing history of beneficial use, black seed has been the subject of much modern research and the last few decades have provided scientific evidence for many of black seed's healing powers. Used traditionally to support the immune system, aid digestion and soothe respiratory issues, black cumin now has scientific support for its use in the treatment and prevention of numerous chronic diseases (Mercola, 2016). Recent scientific research has now proved that the traditional uses of the seed are fully justified.

Over the last five decades, there have been hundreds of studies on black seed alone. A recent search on MEDLINE for "*Nigella sativa*" resulted in over 500 studies and research projects. This means that black seed is very useful against a vast array of medical complaints from those caused by bacteria or viruses, to common allergies and its traditional applications range from skincare to digestion and fertility. There have also been numerous ongoing researches on the effects of black seed. The MEDLINE database (US National Library of Medicine) has recently documented 741 research projects on the seed of *Nigella sativa*. Some of the projects are already completed and results published. Over 150 research papers on black seed have been published in recent times confirming many of the healing properties traditionally attributed to black seed. The biomedical research on black seed has continued to flourish, with another 78 studies published and cited on the National Library of Medicine's biomedical database MEDLINE over the past 11 months (<http://www.anintentionallife.com/a-natural-treatment-this-black-seed-is-the-remedy-for-everything-but-death/>).

### **Scientific researches in Europe**

In Europe ongoing scientific research has fueled immense public interest into the health benefits of using black seed, where black seed supplements are sold in most health stores and it is popularly regarded as an effective alternative medicine. Furthermore, it has been the subject of intensive scientific research indicating that it strengthens and stabilizes the immune system and is greatly beneficial in the treatment of allergies (<http://thebestmedical.blogspot.com/2007/03/black-cumin-nigella-sativa.html>). It has also been found to be beneficial in the treatment of impotence when the causes are primarily physiological (<http://naturalalternativepharma.com/research.php?ac=post&id=5&uid=1&p=0&cat=6&m=0&y=0>).

### **World Health Organization recommends black seed as an herbal remedy**

*Nigella sativa* is the most extensively studied plant on the

face of the earth, both phytochemically and pharmacologically. It is one of the few natural herbal remedies found to have tremendous potential benefit. Today, more and more medical scientists and professionals are recognizing the power of this amazing little seed. It was recently recommended as herbal remedy by the World Health Organization. The ongoing scientific research in the West continues to show the positive results to generate excitement throughout the medical industry ([http://www.shifalife.com/etrading/black\\_seed.jsp](http://www.shifalife.com/etrading/black_seed.jsp)).

### **Black seed oil approved by US Food and Drug Administration as an immune system stimulant**

In the spring of 1996, the U.S. Food and Drug Administration (FDA) granted a patent for the use of the extracts of *N. sativa* Linn., commonly known as the black seed or black cumin as an immune system stimulant. The patent was based on "a pharmaceutical composition containing an extract of the plant *Nigella sativa* for treating cancer, preventing the side effects of anticancer chemotherapy, and for increasing the immune functions in humans" ([www.islamicbulletin.org/newsletters/issue](http://www.islamicbulletin.org/newsletters/issue)).

### **FDA recommends black seeds to prevent diseases and slow down aging process**

Due to the presence of many nutrients, the FDA recommends black seeds to help prevent disease and slow down the aging process (<http://fatwa.islamweb.net/en/article/157049/black-seed-nigella-sativa-a-cure-for-every-disease>). Dr. Michael Tierra, author of *Planetary Herbology*, found that in addition to nutrients, black seeds also contain a remarkable number of sterols, especially beta-sitosterol, which are known to have anti-carcinogenic properties (<http://www.islamweb.net/en/article/157049/black-seed-nigella-sativa-a-cure-for-every-disease>). This substantiates its folk use for indurations and/or tumors of the abdomen, eyes and liver (<http://ip.aaas.org/tekindex.nsf/2a9c4e44835b04ea85256a7200577a64/52d5f7ff4f08b46085256ae700755f3e/Body/M1?OpenElement>).

### **Black seed is antileukemic and it treats asthma, whooping cough and intestinal worms**

The essential oil of *N. sativa* seeds is antimicrobial and successful in the ratification of intestinal worms. In vitro studies in Jordan and the United States have shown its volatile oil to be anti-leukemic. Other studies suggest this same active ingredient may serve as an immune-system booster and is proven effective in treating asthma and whooping cough (<http://www.blackseedproducts.com/faqs/9-what-are-the-benefits-of-black-seed.html>).

### **Studies in Morocco and Jordan for the use of *Nigella sativa* in the treatment of diabetes**

*Nigella sativa* has traditionally been used in Morocco and Jordan to treat diabetes as well as hypertension. Several research studies have confirmed that black seed oil helps in stabilizing blood sugar levels in diabetics while also stimulating pancreatic function. Both animal and human trials have discovered its potential in treating type 2 diabetes. Researchers conclude there is no doubt that black cumin seed oil possesses anti-diabetic activity (Seward, 2015).

### **Treatment of diabetes type 1 and type 2 using black seed**

Black seed oil can help prevent both type-1 and type-2 diabetes by causing partial regeneration of pancreatic beta-cells, increasing the serum insulin, and decreasing elevated glucose. Also, it has been shown to improve glucose tolerance as efficiently as metformin, a typical drug for type-2 diabetics, yet shows no adverse effects. Dosage for Type 2 diabetes is to take two grams of black seed a day. This resulted in reduced fasting glucose, decreased insulin resistance, increased beta-cell function, and reduced glycosylated hemoglobin (HbA1c) in human subjects (Axe, 2015).

### **Studies at Kuwait University and Japan for the use of *Nigella sativa* in the treatment of diabetes**

In 1991 at the Kuwait University, the researchers carried out work on some diabetes 2 patients who were not insulin dependent. In 2002 at the Gifu University, Japan, researchers also concluded that black seed may be of significant value to sufferers of diabetes 2. Thymoquinone from *Nigella sativa* prevents kidney damage associated with diabetes (that is, it has protective effects on experimental diabetic nephropathy) (Black Seeds (*Nigella sativa*) - The Miraculous Healing Power for all Diseases, Publisher: Um Hurairah, 01/01/2012).

### **Studies at Turkey University for the use of *Nigella sativa* in the treatment of diabetes**

In 2003 there were three different faculties in Turkey where black seed was tested on diabetic rabbits and the results showed that the sugar level was lowered and brought back to normal. Again in 2004 at the Faculty of Medicine, Zonguldak Karaelmas University, Zonguldak, Turkey the scientists studied the effects of *Nigella sativa* on diabetic rats. The conclusion was the same as all other tests above (<http://nigellasativa.weebly.com/black-cumin-protocol-for-diabetes.html>).

### **Clinical studies at King Faisal University in using *Nigella sativa* in the treatment of diabetes2**

In 2010 at the Department of Physiology, College of Medicine, King Faisal University, Dammam, Saudi Arabia showed an improved glycemic control in diabetic patients with type 2 Diabetes. This study tested 1, 2, and 3 g of *Nigella* seeds combined with antidiabetic medicine. There were 94 patients studied for a period of 3 months and the end results showed that patients who took 2 g of *N. sativa* seeds in capsule form had the highest success rate. The results of this study indicate that a dose of 2 g/day of *N. sativa* might be a beneficial adjuvant to oral hypoglycemic agents in type 2 diabetic patients.

### ***Nigella sativa* is an effective therapeutic agent in the management of diabetes mellitus**

In April of 2011 at Department of Pharmacology and Montreal Diabetes Research Center, Université de Montréal, Montréal, QC, Canada showed that *N. sativa* anti-diabetic effect appeared to be rooted in the ability of the seed to improve insulin sensitivity. Researchers also found that just 2 g daily of black seed could result in reduced fasting blood sugar levels, along with decreased insulin resistance, and increased beta-cell function in the pancreas. The water and alcohol extracts of *N. sativa* at low doses also have a blood-sugar lowering effect (Bamosa et al., 2010).

### **Recent studies on diabetes using black seed in Iran**

Studies disclose that oxidative stress may decrease the efficiency of pancreatic  $\beta$  cells, which control the production and release of insulin. As such, oxidative stress is thought to play a role in the development of diabetes. Black cumin decreases oxidative stress and may preserve the integrity of pancreatic  $\beta$  cells (Shafiq et al., 2014).

When diabetic people consumed two grams of black cumin per day for three months, it led to reductions in fasting blood sugar and HbA1c and increased the functionality of pancreatic  $\beta$  cells, which suggests black cumin may be a "beneficial adjuvant therapy in type 2 diabetes" (Shafiq et al., 2014).

### **Effectiveness of *Nigella sativa* oil in the management of rheumatoid arthritis**

The study was conducted by Tamer A. Gheita and Sanaa A. Kenawy to determine the effectiveness of *N. sativa* oil in RA patients. The results were published online on December 12, 2011. The constituents of *N. sativa* modulate the immune system. The paper analyzed and

discussed data from 40 female RA patients diagnosed according to the 2010 ACR/EULAR.

The patients took two placebo (starch filled) capsules daily for 1 month. This was followed by a month of *N. sativa* oil capsules 500 mg twice/day. The disease activity score (DAS-28) significantly decreased after receiving the *N. sativa* capsules ( $4.55 \pm 0.82$ ) compared with before and after placebo ( $4.98 \pm 0.79$  and  $4.99 \pm 0.72$ , respectively) ( $p = 0.017$ ). Recently another research has been carried out in Pakistan to determine the anti-inflammatory effects of thymoquinone on body weight, clinical score of inflammation, total leukocyte count and differential leukocyte count in arthritic rats and compare it with that of methotrexate (Faisal et al., 2015).

### **Indonesia University researchers study the use of *Nigella sativa* seed extract on the blood pressure of elderly with hypertension**

This study was sponsored by Indonesia University. Researchers conducted a randomized, double blind, placebo-controlled trial to prove the effect of *N. sativa* seed extract in elderly patients with hypertension. It was found that a dose of 300 mg *N. sativa* seed extract twice daily will have anti-hypertensive effect in the blood pressure of elderly patients suffering from hypertension (Effect of *Nigella sativa* Seed Extract on the Blood Pressure of Elderly With Hypertension, Verified July 2011 by Indonesia University. ClinicalTrials.gov Identifier: NCT01393054).

### **Blood pressure lowering effect of black seed oil in healthy volunteers**

A study was conducted by Fallah Huseini et al. (2013) to explore the effects of *N. sativa* oil on blood pressure (BP) in healthy volunteers. In a double-blind, randomized study, 70 healthy volunteers aged 34 to 63 years with systolic BP from 110 to 140 mmHg and diastolic BP ranging from 60 to 90 mmHg were randomly allocated to receive 2.5 ml *N. sativa* oil or placebo two times a day for 8 weeks. The systolic and diastolic BPs, body mass index and blood levels of aspartate transaminase, alanine transaminase, alkaline phosphatase, creatinine and blood urea nitrogen were determined at baseline and endpoint.

Results showed that in *N. sativa* oil treated group the systolic and diastolic BPs decreased significantly compared with baseline and placebo group at the endpoint. Other parameters did not significantly change in both groups at the endpoint. No adverse effects were reported. In conclusion, oral daily administration of 5 ml black seed oil to healthy volunteers for 8 weeks lowers systolic and diastolic BPs without any adverse effects (Fallah Huseini et al., 2013).

### **Treatment of high blood pressure using black seeds**

In a small study published in 2008, researchers found that *N. sativa* may help keep normal blood pressure in check. After eight weeks of twice-daily treatment with *N. sativa* extract, patients with mild hypertension had a greater reduction in blood pressure (compared to those assigned to a placebo supplement). The daily use of 100 and 200 mg of black seed extract, twice daily, for 2 months, was found to have a blood pressure-lowering effect in patients with mild hypertension (Wong, 2015).

### **Black cumin strengthens the immune system, purifies the blood and increases longevity**

According to researchers black cumin may be regarded as the most effective “all-in-one” health food in existence. It regulates the blood and keeps the blood levels at a normal range of 80 to 130 mmHg. Black seed oil is the ultimate life elixir. It should be taken daily as a preventative measure for all illnesses, and life-long vitality. Dr. Gary Null of Progressive Radio Network said, “Black cumin oil is probably the single most important oil you can put in your system” (Clark, 2014).

### **Thymoquinone (TQ) from black seeds are anti-oxidant, anti-tumour and anti-mutagenic**

Thymoquinone (TQ), the major bioactive compound of *Nigella sativa* is considered as potent antioxidant (Badary et al., 2003), anti-carcinogenic and anti-mutagenic agent (Bourgou et al., 2008; Khader et al., 2010). Moreover, TQ is a relatively safe compound, particularly when given orally to experimental animals (Al-Ali et al., 2008). Much of the biological activities of the seeds have been shown to be due to thymoquinone, which is also present in the fixed oil (Ali and Blunden, 2003).

### **Alpha (α)-hederin from black seed is a anti-tumour agent**

Alpha (α)-hederin, a pentacyclitriterpenesaponin isolated from the seeds of *N. sativa*, was also reported to have potent *in vivo* antitumor activity (Swamy and Huat, 2003). Researchers believe thymoquinone holds promise as a preventative strategy both for patients who have already gone through surgery and chemotherapy, as well as a promising preventative measure – especially for those genetically prone.

Black cumin develops the immune system through boosting the body's immune cell production, cancer and HIV prevention and bone marrow and natural interferon production: Dr. Gary Null of Progressive Radio Network states: Every time you take black cumin you are

stimulating your immune system to fight on your behalf and increase natural killer cells. It helps treat even the most difficult invaders like cancer and HIV, successfully. The seeds improve the immune system by stimulating the production of bone marrow and cells of the immune system. It increases the production of interferon, protects normal cells from the damaging effects of harmful invaders and helps destroy tumor cells (<http://www.hlfteam.com/black-cumin-seed-oil-to-fight-cancer-and-improve-your-immune-system/>).

### **Black cumin develops and boosts the immune system**

Black cumin's immune-building properties and active compounds have been proven to help fight a large number of diseases and auto-immune disorders through the boosting of the body's immune cell production, bone marrow, and natural interferon. Even for people in the best state of health, consuming black cumin regularly has greatly increased their vitality and well-being! (Clark, 2014).

### **Heart strengthened by black cumin**

Researchers reported that rich unsaturated omega 6 and 9 acids and phytosterols help fortify and increase the elasticity of blood vessel walls, decrease capillary fragility and permeability, prevents thrombus formation, and decrease arterial pressure. It also prevents development of inflammatory elements in the overall cardiovascular system. Additionally, black cumin has been used to treat tachycardia, bradycardia, hypotension and hypertension (Clark, 2014).

It has been reported that black cumin is rich in phytochemicals, and it contains antioxidants and other nutritionally essential components that, eaten regularly, black cumin might prevent numerous maladies. Some have even called it a "seed of blessing" because it provides protection against two of the leading causes of death in the U.S., cancer and heart disease (Shafiq et al., 2014).

### **Pakistani and Bangladeshi scientists confirm the antibacterial activity of black cumin**

In 1989, an article about phenomenal properties of black cumin was published in the Pakistani Medical Journal. In 1992, research of the antibacterial properties of black cumin – in comparison with strong antibiotics was carried out by the researchers of the medical department of the University of Dhaka, Bangladesh. The facts were very fascinating – black cumin oil demonstrated itself as a more efficient remedy against certain types of bacteria including those which most strongly resist antibiotic drugs (Clark, 2014).

### **Antibacterial and antifungal activity of black seed extracts**

A 2005 study conducted in Mashaad University of Medical Sciences showed that black seed extracts produced antimicrobial activity against a broad range of microbes and especially on multiple antibiotic resistant bacteria. In 2005, another study on antibacterial and antifungal effects of black seed was conducted by Nasser Vahdati-Mashhadian and Hassan Rakhshandeh against antibacterial and antifungal effects of *Nigella sativa* extracts against *S. aureus*, *P. aeruginosa* and *C. albicans* (<http://www.blackseedproducts.com/faqs/11-has-there-been-any-scientific-research-done-on-black-seed.html>).

### **Cairo University researchers find strong antibacterial activity in black seed extract**

A study at Cairo University in Egypt showed a boost in antibacterial activity when the extract was used in combination with antibiotics such as streptomycin and gentamicin. The same study showed additional antibacterial effect in combination with erythromycin, tobramycin, doxycycline, and ampicillin, to kill *E. coli* and the pathogenic yeast, *Candida albicans*. In addition, the study showed that the extract destroyed non-fatal subcutaneous staphylococcal infection in mice (Paradise, 2005).

### **Antibacterial and antifungal effects of *Nigella sativa* extracts against *S. aureus*, *P. aeruginosa* and *C. albicans***

The study confirmed the strong anti-bacterial and anti-mycotic effects and that it was found effective in lowering the blood sugar level which is essential for the treatment of diabetes. Scientists in Pakistan discovered that several strains of the MRSA superbug exhibited sensitivity to black seed oil which makes it a promising candidate to prevent future outbreaks of the disease (Seward, 2015). A research conducted in Germany found that black cumin seed was more effective against certain bacteria such as *E. coli* and *V. cholera* than many popular antibiotics.

### **Black cumin extract possesses strong antifungal activity**

A recent study showed that *N. sativa* seed oil could offer a solution to the growing antifungal resistant problem people have with yeasts and molds. Published in the Egyptian Journal of Biochemistry & Molecular Biology, scientists tested TY, TQ and THQ against 30 human pathogens and were surprised to discover that each

compound showed 100% inhibition for the thirty pathogens evaluated; it was also found that thymoquinone was the best antifungal compound against all of the tested dermatophytes and yeasts, followed by thymohydroquinone and thymol; Thymol was the best antifungal against molds followed by thymoquinone and thymohydroquinone (<https://www.linkedin.com/pulse/interesting-article-azhar-jamil?forceNoSplash=true>).

### **Black cumin is found effective against multidrug resistant strains of *P. aeruginosa* and *S. aureus***

A study was conducted to see how potent the little seeds were compared to antibiotics, and it was discovered that it was highly effective against any multidrug resistant strains of *P. aeruginosa* and *S. aureus*. Dr. Josh Axe reported a study conducted by India's Jawaharlal Nehru Medical College researchers who set out to determine just how potent black seed oil is against some of these superbugs and compared it against several antibiotics such as Amoxicillin, Gatifloxacin and Tetracycline (Salman et al., 2008).

According to the study, "out of 144 strains tested, most of which were resistant to a number of antibiotics, 97 were inhibited by the oil of black cumin!" The study uncovered that it was especially effective against multidrug resistant strains of *P. aeruginosa* and *S. aureus*. It was concluded that the key to understanding why black seed oils benefits the body in this way is because it is rich in 3 key natural chemicals: thymoquinone, thymohydroquinone and thymol (Salman et al., 2008).

### **Researchers at King's College London confirm the anti-inflammatory, analgesic and antioxidant activities of black seed extract**

Researchers have tested the anti-inflammatory and analgesic activities of black cumin seed extract. In 1995, a group of scientists from the Department of Pharmacy at King's College in London found that the extract contains anti-inflammatory, analgesic and antioxidant effects. Ultimately, the researchers concluded that black cumin seed extract is a justified treatment for rheumatism and related inflammatory diseases (Paradise, 2005).

### **King Faisal University researchers confirm the anti-inflammatory and analgesic activities of black seed extract**

In 2001, a study performed at the Department of Pharmacology at King Faisal University in Saudi Arabia, reported anti-inflammatory and analgesic activity from the use of black cumin seed extract in animals. Paw edema (swelling) was reduced, as was reaction time in response

to extreme heat. A 2003 study confirmed the analgesic effects of the extract (Paradise, 2005).

### **Black seed extract contains antihistaminic activity**

Researchers have investigated and verified the black seed extract's antihistamine activity. One 1993 study found that nigellone, an ingredient in black cumin seed extract, acted as an inhibitory agent on histamine by inhibiting protein kinase C, known to initiate histamine release. In 2003, another study concluded that black seed oil is an effective treatment for allergies (Paradise, 2005).

### **Black seed oil effective for the treatment of rheumatoid arthritis**

In 1960, a group of scientists from King's College, Department of Pharmacy, London, decided to test black seed oil and its derivative thymoquinone as an anti-inflammatory agent. It was discovered that the agents possessed anti-oxidant activity and inhibited eicosanoid generation in cells. On the basis of the study researchers supported the traditional use of black seed as a treatment for rheumatism and related inflammatory diseases. Several studies since that time have confirmed its anti-inflammatory properties making black seed oil a potentially safe and healthy alternative to conventional drugs for rheumatism and rheumatoid arthritis ([http://www.awarenessmag.com/sep0ct0/so0\\_black\\_seed.htm](http://www.awarenessmag.com/sep0ct0/so0_black_seed.htm)).

### **Black seeds inhibit certain enzymes**

A 1994 study conducted in London by King's College revealed that black seed has properties that inhibit certain enzymes, which also inhibit the production of certain prostaglandins. This is more proof that the rich and complex combination of elements found in black seed work together for a synergistic effect (<http://www.khilafatworld.com/2012/02/health-benefits-of-black-seed-nigella.html>).

### **Florida researchers confirm that black cumin is a viable option for immunity and auto-immune diseases**

Black seeds have shown to improve the immune system by 72 percent in as few as four weeks. Two studies were done in 1987 at the I.I.M.E.R. in Panama City, Florida to verify the immune building effects of black cumin. The volunteer groups were given one gram of black cumin twice a day or a placebo. After four weeks, the end results showed a 72 percent increase in T-cell ratios as well as an increase in natural killer cell functional activity (<https://www.facebook.com/healthmaintenance.dr>).

Black cumin has now become a viable option to treat

and/or heal people afflicted with auto-immune diseases which are a leading cause of death and disability for many. In 2010, there were approximately 23.5 million Americans afflicted with auto-immune diseases which include more than 80 serious diseases. Some of the types are rare and some quite common like rheumatoid arthritis, lupus, Celiac disease and Crohn's disease. Auto-immune diseases also include cancer, diabetes, baldness, asthma and migraines (Davis, Samantha, Black cumin is a viable option for immunity and auto-immune diseases ([http://www.naturalnews.com/038644\\_black\\_cumin\\_oil\\_immune\\_system\\_NK\\_cells.html#ixzz43hgB5k4h](http://www.naturalnews.com/038644_black_cumin_oil_immune_system_NK_cells.html#ixzz43hgB5k4h)).

### **Saudi Arabian researchers support the use of black seed in the treatment of AIDS**

In the field of AIDS research, human clinical trials conducted at the Department of Biological and Medical Research Center in Riyadh, Saudi Arabia (1997) showed that black seed enhanced the ratio between helper T-cell by 55% with a 30% enhancement of NK cell activity. These findings suggest that black seed could play an important role in the treatment of cancer, AIDS, and other immune deficiency states (<http://naturalalternativepharma.com/research.php?ac=post&id=12&uid=1&p=0&cat=13&m=0&y=0>).

### **HIV patient finds cure using black seed extract**

A study by Onifade et al. (2013), reports of a HIV patient who went into complete remission after black seed treatment.

Another study reports that a patient was treated with *N. sativa* for a period of six months, after which there was no detectable HIV virus or antibodies against HIV in his bloodstream. In one study the abstract explains that the patient was suffering with symptoms common in HIV, including chronic fever, weight loss, lesions, and diarrhea. An herbalist advised him to use black seed. He noticed that the treatment had impressive and near-immediate results. The patient was commenced on *Nigella sativa* concoction 10 ml twice daily for 6 months. He was contacted daily to monitor side-effects and drug efficacy. Fever, diarrhoea and multiple pruritic lesions disappeared on 5th, 7th and 20th day respectively on therapy." The author of the study concludes that there are possible therapeutic agents in *Nigella sativa* that may effectively control HIV infection (Renter, 2014).

### **IIBR Laboratory, South Carolina confirms that black seed blocked the tumor growth and dissemination in metastasis**

In 1997 a study on the anti-cancer activity of the black

seed undertaken at the International Immuno-Biology Research Laboratory, South Carolina concluded that, "the activity of black seed blocked the tumor growth and dissemination in metastasis and have remarkable promises for clinical use." The alcohol extract of *N. sativa* seeds also found to exhibit anti-psoriatic activity, consistent with its medicinal use in traditional medicine ([http://www.awarenessmag.com/sepoc0/so0\\_black\\_seed.htm](http://www.awarenessmag.com/sepoc0/so0_black_seed.htm)).

### **Treatment of epilepsy using black cumin**

Published in *Medical Science Monitor*, one study found black seed to be effective at reducing the frequency of seizures in children who resisted conventional treatment. Black seed indeed has anti-convulsive properties. In 2007 a study with epileptic children, whose condition was refractory to conventional drug treatment, was conducted. It was found that a water extract of black seeds significantly reduced seizure activity. Hence, black seeds were traditionally known to have anticonvulsive properties (Dingir, 2014).

### **Researchers at the University of Health Sciences, Pakistan says that MRSA responds favorably to black cumin**

The deadly and antibiotic-resistant bacterial infection known commonly as MRSA, responded favorably to treatment with black seed in a study from the University of Health Sciences in Lahore, Pakistan. It possesses antibacterial activity against clinical isolates of MRSA (methicillin resistant *Staphylococcus aureus* (Renter, 2013).

### **Protection against heart attack damage**

An extract from black seed has been shown to possess heart-protective qualities, dampening damages associated with heart attacks and boosting overall heart health. It has been recently reported that consumption of black cumin is associated with lowering of elevated heart rate and blood pressure. Thymoquinone in black cumin also may benefit endothelial dysfunction, which is involved in many cardiovascular disorders. In patients with such age-related cardiovascular disorders thymoquinone helps to recover endothelial function, in part by inhibiting oxidative stress and regulating the angiotensin system, which is involved in controlling blood pressure (Shafiq et al., 2014).

### **Thymoquinone from black seed induces apoptosis in leukemia**

As it has been shown to do with other types of cancer,

black seed compound thymoquinone has also been shown to induce apoptosis in leukemia cells. It was also reported that it kills leukemia cells *in vitro* (Salim, 2013).

### **Black cumin protects brain damage due to lead poisoning**

A study published in *Experimental and Toxicologic Pathology* indicates black seed is able to dampen and reverse damage to the brain sparked by lead toxicity.

### **Black seed cures hypertension, schistosomiasis, protects kidney tissue and prevents renal dysfunction**

Black seed is effective against hypertension (Khattab and Nagi, 2007; Dehkordi and Kamkhah, 2008). It has a potent antihistaminic effect on airways of asthmatic patients (Boskabady et al., 2010). Its components are promising agents to complement schistosomiasis specific treatment (El Shenawy et al., 2008). The oil protects kidney tissue against oxygen free radicals, preventing renal dysfunction and morphological abnormalities (Bayrak et al., 2008; Uz et al., 2008; Ragheb et al., 2009).

### **Scientific studies confirm that black seed oil can cure numerous cancers**

Although the anti-cancer activity of *N. sativa* was recognized thousands of years ago, it was not until the past two or three decades that modern scientific research has been undertaken to study this important traditional medicine. Black seed provides powerful benefits for various inflammatory cancers such as liver, melanoma, skin, pancreatic, cervical, breast, bone, stomach, lymphoma, prostate, colon, and brain. In fact, the phytochemicals of TQ and THQ resulted in a 52% decrease in tumor cells (Thomas, 2014).

### **Black seed oil proved to be effective for cancer treatment**

Black seed oil has been extensively researched as a possible cancer treatment. Studies have revealed that one of its main active compounds, thymoquinone, has great potential in cancer treatments. Numerous studies show that thymoquinone can help to induce cell death or apoptosis in a number of cancerous cells including leukemia, breast cancer, pancreatic cancer and cervical cancer. There is a growing body of research that shows thymoquinone reduces the size and the growth of tumors in rats (<http://healthyfocus.org/top-10-black-seed-oil-health-benefits/>).

### **Black cumin seed oil is a cancer-fighter**

*Nigella sativa* is the most powerful oil in the world. It has been involved in hundreds of studies regarding health, and particularly cancer treatment and prevention. One of the active ingredients, Thymoquinone, has been found to be particularly effective in reducing the size of existing tumors. In studies on rats and humans, researchers found that black cumin seed oil has been found to possess the following effects (<http://www.natural-livingideas.com/black-cumin-seed-oil/>):

- i) Inhibited tumor growth by up to 50%
- ii) Increased the growth of healthy bone marrow cells by 250%
- iii) Aides in the production of natural interferon
- iv) Demonstrated strong anti-bacterial and anti-inflammatory properties
- v) Helps to protect the body against damage from chemotherapy and radiation
- vi) Deactivated and/or killed certain types of cancer cells.

### **Anticancer activities of black cumin**

Researchers at the Department of Biochemistry, School of Biological Science and Technology, Central South University, Hunan 410013, China and Department of Biochemistry and Molecular Biology, Philadelphia College of Osteopathic Medicine, Philadelphia, Pennsylvania, USA confirmed that black cumin possesses anticancer activity. Articles from African Journal of Traditional, Complementary, and Alternative Medicines are provided here courtesy of African Networks on Ethnomedicines (Khan et al., 2011).

### **Black seed suppresses growth of multiple types of cancer**

A study published in "Oncology Letters" in 2010 found that two daily doses of crude extra-virgin black seed oil inhibited the growth of cancer tumors in the colon, lungs, esophagus and fore-stomach in rats. This was the case both in rats given doses at 50 mg per kg of body weight and 200 mg per kg of body weight. The study concluded that black seed oil has carcinopreventive and chemopreventive potential, which means that it could possibly be used to prevent cancer and lessen the need for chemotherapy in the early stage of cancer (McCarthy, 2015).

AbuKhader et al. (2013) recently reports that thymoquinone is known to have anti-cancer effects. Research published in Drug Discovery Today concluded that thymoquinone has a long history of battling cancer *in vitro* and *in vivo* (in "test tube" experiments and animal studies), and modulates 9 of the 10 hallmarks of cancer

(Schneider-Stock et al., 2014). Thymoquinone extract from black cumin also appears to be effective against cancers in the blood, lung, kidney, liver, prostate, breast, cervix, colon and skin (Khan et al., 2011).

### **Black cumin suppresses tumor growth and prevents need of chemotherapy**

In another study, published in the "Brazil Journal of Medical and Biological Research" in 2007, scientists induced cancerous tumors in rats to find the extent to which black seed oil could suppress their growth. They injected the oil directly into tumors on rats every day for 30 days, and did not treat the control group. By the end of the study, the control group had tumors about 2.5 centimeters in size, whereas the tumors in treated rats were just two-tenths of a centimeter. This reveals more compelling evidence supporting the potential role of black seed oil in preventing the need for chemotherapy in cancer patients (McCarthy, 2015).

### **Chinese and Saudi Arabian researchers confirm the anti-cancer activity of black seed oil**

In two separate 2011 studies, Chinese and Saudi Arabian researchers reviewed the scientific literature for the use of black seed oil in treating cancer. They reconfirmed the anti-cancer property of this safe and natural seed oil. The oil and the extracted component called thymoquinone are both effective against many diseases such as cancer, cardiovascular complications, diabetes, asthma, kidney disease, etc. They concluded that it is a safe and effective agent against cancer in the blood system, lungs, kidneys, liver, prostate, breast, cervix, and skin (Thomas, 2014).

### **A Yemeni woman reports she was cured of stage 3 cancer**

A woman in Yemen, suffering of stage 3 cancer – longed for natural treatment. She was advised to take black cumin seeds with honey three times a day. After three months, her cancer completely disappeared. The woman continued consumption of these nutrient foods even after illness had diminished (<http://panaseeda.com/black-cumin-oil/>).

### **Researchers in the Cancer Immuno-biology Laboratory, South Carolina confirm that black seed stimulates bone marrow and immune cells**

Research in the Cancer Immuno-biology Laboratory, South Carolina concluded that black seed stimulates

bone marrow and immune cells, and raises the interferon production, protects normal cells against cell destroying effects of viruses, destroys tumour cells and raises the number of anti-bodies producing B cells. All these functions make the black seed oil an ideal natural product for the prevention and treatment of cancer (Wagner, nd).

### **Cancer and Immuno-biology Laboratory, South Carolina confirms that black seed stimulates the activity of neutrophil granulocytes**

Cancer and Immuno-Biology Laboratory in South Carolina found that black cumin helps stimulate the activity of neutrophil granulocytes – the most abundant type of white blood cell in the body. These neutrophils target cancer cells before they multiply, and help eliminate them before they can develop into harmful tumors (Clark, 2014).

### **Recent scientific research indicates that black seed reduces the growth and size of tumors in rats**

According to Katherine Anderson, ND, FABNO, National Director of Naturopathic Medicine for CTCA (February 26, 2014), there is a growing evidence that black cumin and its volatile oil may have anticancer properties. Studies taken by Anderson points to indicate the seeds' active ingredients, particularly thymoquinone may reduce the growth and size of tumors in rats.

### **Research using Swiss albino mice indicates that black seeds inhibit the growth of common type of cancer cells (EAC & DLA)**

A study of black seed's potential anti-tumor principles by the Amala Research Center in Amala Nagar, Kerala (India) in 1991 lent further impetus to Dr. Chakravarty's suggestion for the possible use of black seed in the treatment of cancer. Using an active principle of fatty acids derived from black seed, studies with Swiss albino mice showed that this active principle could completely inhibit the development of a common type of cancer cells, called Ehrlich ascites carcinoma (EAC). A second common type of cancer cells, Dalton's lymphoma ascites (DLA) was also used. Mice which had received the EAC cells and black seed remained normal without any tumour formation (<http://www.missionislam.com/health/blackseed.html>).

### **Pancreatic cancer completely destroyed by black cumin**

Patients with pancreatic cancer has the lowest chance of

survival due to the reason it is not detected in most cases until it has reached stages III and IV. The overall survival rate is 4.6% and in most cases can only be cured when you catch it in the earlier stages. There are many studies showing that *N. sativa* has been successful in killing pancreatic cancer cells in 82% of the cases. The study also shows that *N. sativa* is successful after surgery and chemo has been used (<http://cancer.emedtv.com/pancreatic-cancer/pancreatic-cancer-survival-rates-p2.html>).

A 2008 study on Pancreatic Cancer was conducted by Dr. Sanjeev Banerjee and Dr. Fazlul Sarkar at Karmanos. Researchers' report showed enhanced chemosensitivity of pancreatic cancer cells by components from black seeds.

### **Researchers from Thomas Jefferson University, USA confirm black cumin annihilates pancreatic cancer tumors**

Dr. Hwyda Arafat at the Kimmel Cancer Center at Thomas Jefferson University USA conducted several studies using *N. sativa* to treat pancreatic cancer. The results were astounding with an 80% cancer tumor cell death. It also showed to stop the gene transcription process so cancer cells cannot replicate. Dr. Arafat went on to say, "*N. sativa* helps treat a broad array of diseases, including some immune and inflammatory disorders" (<http://cancer.emedtv.com/pancreatic-cancer/pancreatic-cancer-survival-rates-p2.html>).

### **Black cumin induced apoptosis and inhibited proliferation in pancreatic ductal adenocarcinoma cells**

Chehl et al. (2009) showed that TQ, the major constituent of *N. sativa* oil extract, induced apoptosis and inhibited proliferation in PDA (pancreatic ductal adenocarcinoma) cells. They also suggested TQ as a novel inhibitor of pro-inflammatory pathways, which provides a promising strategy that combines anti-inflammatory and proapoptotic modes of action. TQ also can abrogate gemcitabine- or oxaliplatin-induced activation of NF-kappa B, resulting in the chemosensitization of pancreatic tumors to conventional therapeutics (Banerjee et al., 2009).

### **The potential benefits of thymoquinone (TQ) in treating liver cancer**

A 2010 study on Liver Cancer was conducted by Dr. H. A. Mohamed, Dr. I. H. El-Sayed and Dr. M. Moawad. The findings were reported in Nature and Science, 2010.

### **Black seed induces cell death of brain cancer cells**

A study published in the online journal *PLoS One* indicates thymoquinone from black seed can induce cell

death in glioblastoma cells. Glioblastoma is one of the most aggressive brain tumors of all. Thymoquinone from *N. sativa* kills highly aggressive glioblastoma brain cancer cells. The oil and its active component, thymoquinone, protect brain tissue from radiation damage. Thymoquinone from *N. sativa* extract prevents lead-induced brain damage in Sprague dawley rats.

### **Treatment of blood cancer with black cumin**

El-Mahdy et al. (2005) reported that TQ exhibits anti-proliferative effect in human myeloblastic leukemia HL-60 cells. Derivatives of TQ bearing terpene-terminated 6-alkyl residues were tested in HL-60 cells and 518A2 melanoma by Effenberger et al. (2010). They found the derivatives induce apoptosis associated with DNA laddering, a decrease in mitochondrial membrane potential and a slight increase in reactive oxygen species. Swamy and Huat (2003) observed that  $\alpha$ -hederin also induced death of murine leukemia P388 cells by a dose- and time-dependent increase in apoptosis.

### **Treatment of breast cancer with black cumin**

Aqueous and alcohol extracts of *N. sativa* were found to be effective *in vitro* in inactivating MCF-7 breast cancer cells (Farah and Begum, 2003). *N. sativa*, in combination with melatonin and retinoic acid reduced the carcinogenic effects of DMBA (7, 12-di-methylbenz(a)anthracene) in mammary carcinoma of rats (El-Aziz et al., 2005). Terpene-terminated 6-alkyl residues of TQ were tested in MCF-7/Topo breast carcinoma by Effenberger et al. (2010). They found the derivatives inducing cell death by apoptosis.

### **Black cumin increases the growth rate of bone marrow cells and inhibits tumor growth**

One of the largest experimental studies so far proved that *N. sativa* oil had enormous success in tumor therapy without the negative side effects of common chemotherapy. They found that it increased the growth rate of bone marrow cells by a staggering 250% and it inhibited tumor growth by 50%. It stimulated immune cells and raised the interferon production which protects cells from the cell destroying effect of viruses (<http://www.origo.com.tr/en/black-cumin-seed-oil.html>).

### **Treatment of colon cancer with black cumin**

Gali-Muhtasib et al. (2004) suggested that TQ is anti-neoplastic and pro-apoptotic against colon cancer cell line HCT116. Salim and Fukushima (2003) demonstrated that the volatile oil of *N. sativa* has the ability to inhibit

colon carcinogenesis of rats in the post-initiation stage, with no evident adverse side effects. Norwood et al. (2007) suggested TQ as chemotherapeutic agent on SW-626 colon cancer cells, in potency, which is similar to 5-fluorouracil in action. However, on HT-29 (colon adenocarcinoma) cell, no effect of TQ was found (Rooney and Ryan, 2005).

In one animal study, the seed was able to fight colon cancer in rats successfully with no observable side effects. Cell studies have also found that black seed extract compares favorably to the chemoagent 5-fluorouracil in the suppression of colon cancer growth, but with a far higher safety profile. Animal research has found that black seed oil has significant inhibitory effects against colon cancer in rats, without observable side effects (Ji, 2013).

#### **Lebanese researchers confirm black seed oil inhibits and kills colon cancer cells**

In an earlier study in 2004, Lebanese researchers identified the powerful role of black seed oil as a cancer preventative and cancer treatment agent. The researchers noted that black seed and black seed oil have been used in Asia, the Middle East and Africa to promote health and fight disease. Thymoquinone, the bioactive constituent present in black seed, is a promising dietary agent for preventing cancer. The researchers investigated the effects of thymoquinone against human colon cancer cells and found that thymoquinone effectively inhibits the growth of colon cancer cells (<http://healthimpactnews.com/2014/black-seed-oil-cures-many-cancers-according-to-numerous-studies/>).

#### **Treatment of hepatic cancer with black cumin**

The cytotoxic activity of *N. sativa* seed was tested on the human hepatoma HepG2 cell line by Thabrew et al. (2005), and 88% inhibitory effect on HepG2 was found after 24 h incubation with different concentrations (0 to 50 mg/ml) of the *N. sativa* extract.

#### **Thymoquinones (TQ) is an effective prophylactic agent against chemical carcinogenesis**

Nagi and Almakki (2009) reported that oral administration of TQ is effective in increasing the activities of quinine reductase and glutathione transferase and makes TQ a promising prophylactic agent against chemical carcinogenesis and toxicity in hepatic cancer.

#### **Treatment of lung cancer with black cumin**

Swamy and Huat (2003) mentioned the antitumor activity

of  $\alpha$ -hederin from *N. sativa* against LL/2 (Lewis Lung carcinoma) in BDF1 mice. Also, Mabrouk et al. (2002) showed that supplementation of diet with honey and *N. sativa* has a protective effect against MNU (methylnitrosourea) induced oxidative stress, inflammatory response and carcinogenesis in lung, skin and colon.

#### **Treatment of skin cancer with black cumin**

Topical application of *N. sativa* extract inhibited two-stage initiation/promotion [dimethylbenz[a]anthracene (DMBA)/croton oil] skin carcinogenesis in mice. Again, intraperitoneal administration of *N. sativa* (100 mg/kg body wt) 30 days after subcutaneous administration of MCA (20-methylcholanthrene) restricted soft tissue sarcomas to 33.3% compared with 100% in MCA-treated controls (Salomi et al., 1991).

#### **Treatment of fibrosarcoma with black cumin**

TQ from *N. sativa* was administrated (0.01% in drinking water) one week before and after MCA treatment significantly inhibited the tumor incidence (fibrosarcoma) and tumor burden by 43 and 34%, respectively, compared with the results in the group receiving MCA alone. Moreover, TQ delayed the onset of MCA-induced fibrosarcoma tumors. Also *in vitro* studies showed that TQ inhibited the survival of fibrosarcoma cells with IC50 of 15 mM (Badary and Gamal, 2001). Oil of *N. sativa* also decreased the fibrinolytic potential of the human fibrosarcoma cell line (HT1080) *in vitro* (Awad, 2005).

#### **Treatment of renal cancer with black cumin**

Khan and Sultana (2005) reported the chemo-preventive effect of *N. sativa* against ferric nitrilotriacetate (Fe-NTA)-induced renal oxidative stress, hyper-proliferative response and renal carcinogenesis. Treatment of rats orally with *N. sativa* (50 to 100 mg/kg body wt) resulted in significant decrease in H<sub>2</sub>O<sub>2</sub> generation, DNA synthesis and incidence of tumors.

#### **Treatment of prostate cancer with black cumin**

The researchers suggested TQ as effective in treating hormone-sensitive as well as hormone-refractory prostate cancer. Yi et al. (2008) found that TQ blocked angiogenesis *in vitro* and *in vivo*, prevented tumor angiogenesis in a xenograft human prostate cancer (PC3) model in mouse, and inhibited human prostate tumor growth at low dosage with almost no chemotoxic side effects.

### **Studies on molecular mechanisms of growth inhibitory effects of thymoquinone against prostate cancer cells**

A 2010 study on Prostate Cancer was conducted by Dr. Debasis Mondal, Department of Pharmacology; Department of Urology, Tulane University School of Medicine, New Orleans, LA. There is a U.S. Patent on the Inhibition of cancer cell growth (US 5,653,981).

### **Treatment of cervical cancer with black cumin**

Shafi et al. (2009) reported that methanol, n-Hexane and chloroform extracts of *N. sativa* effectively killed HeLa (human epithelial cervical cancer) cells by inducing apoptosis. Effenberger et al. (2010) tested terpene-terminated 6-alkyl residues of TQ on multidrug-Resistant KB-V1/Vb1 cervical carcinoma and found the derivatives inducing cell death by apoptosis. TQ has also been reported to be active in controlling Akt pathway and administration of *N. sativa* oil can lower the toxicity of other anticancer drugs (Alenzi et al., 2010). It was also reported that *N. sativa* extract exhibits anti-proliferative, apoptotic and anti-invasive properties in a cervical cancer cell line.

### **Treatment of oral cancer with black seed extract**

Research documented by US National Library of Medicine National Institute of Health indicates thymoquinone from *N. sativa* extract is able to induce cell apoptosis in oral cancer cells. It was also found that thymoquinone also kills oral cancer cells (<http://www.regenerativenutrition.com/black-seed-oil-p-100.asp?xcur=2&>).

### **Black seeds and honey together cure cancer**

Egyptian researchers studied the protective effect of bee honey and Nigella grains on the oxidative stress and the cancer that was created by exposing rats to a strong carcinogen. After the four groups of rats were exposed to the carcinogen, some groups were fed black seeds or honey, and one group was fed both black seeds and honey. The rats were evaluated after 6 months. The rats that ate black seeds received an 80% protection against oxidative stress and cancer formation, whereas the rats that ate a daily dose of both honey and black seeds were protected 100% against oxidative stress, inflammatory responses, and cancer formation (Thomas, 2014).

### **Combined use of black seeds and honey eliminate liver cancer cells**

A 2012 study from Egypt evaluated anti-tumor effects of

bee honey and black seed oil on human liver cancer cells in laboratory experiments. They examined the antioxidant capacity of honey and black seed extract, and the ability of these substances to eliminate unhealthy cancer cells. They found that both honey and black seed extract were effective in reducing the viability of liver cancer cells. Honey and black seed extract also improved the antioxidant status of cells and induced cancer cell death by apoptosis (Hassan et al., 2012).

### **Turkish researchers confirm that black seed oil helps in radiation treatment**

In a 2014 study, Turkish researchers reported how black seed oil could potentially be helpful to people receiving radiation treatment for cancer. They indicated that many cancer patients treated with radiation therapy suffer severe side effects during and after their treatment. This study investigated the effects of irradiation and the addition of black seed oil on the oxidant/antioxidant system in the liver tissue of irradiated rats. They exposed some of the rats to a single dose of gamma radiation. One group of rats received one gram of black seed oil per kilogram of body weight one hour before the radiation and received a daily dose afterward for 10 days. Another group received the radiation treatment and was given a saline solution instead of black seed oil. The control group was not irradiated (Cikman et al., 2014).

### **Black seed protects against adverse effects of radiotherapy**

The analysis of the data shows that black seed oil reduces oxidative stress markers and has antioxidant effects, which also augments the antioxidant capacity in the liver tissue of rats. Thus, the use of black seed oil before radiation treatment, and for 10 days afterward, protected the rats from some of the harmful effects of radiation. There is evidence that black seed oil can work as a natural protective guard against the dangers caused by radiation treatment in cancer patients (Seward, 2015).

### **Indian scientists confirm black seed oil helps in radiation treatment**

In a 2012 study in India, scientists investigated the effect of using an extract of black seeds on mice exposed to gamma radiation. A group of normal mice and a group of tumor bearing mice were tested. This experiment was done to mimic the human clinical setting where normal tissues of cancer patients are exposed to the harmful effects of radiation therapy. The mice were given black seed extract before being exposed to the gamma

radiation. They were given 100 mg of black seed extract per 1 kg of body weight.

The results showed that the extract of black seed protected the liver, spleen, brain and intestines from gamma radiation damage for both the normal mice and the mice with tumors. Researchers concluded that the liquid extract of black seeds has protective effects against radiation-induced damage and biochemical alterations. Thus, the liquid extracted from black seeds could be used with human cancer patients who receive radiation to protect against oxidative stress in normal tissues, and to mitigate other unwanted side effects of radiation. This could improve the quality of life for cancer patients (Velho-Pereira et al., 2012).

### **Black seeds interfere with uncontrolled cell growth and kill liver cancer cells**

In 2013, researchers in India investigated the use of thymoquinone from black seeds. Two groups of rats with liver cancer were studied. One group was given water to drink that contained 0.01% thymoquinone, and the other group was given plain water. After 16 weeks, the liver cancer nodules, liver injury markers and tumor markers were measured in both groups.

The rats that did not receive the thymoquinone had substantial increases in liver tumor size. On the other hand, the rats that received 20 mg of thymoquinone per kilogram for body weight had greatly reduced liver injury markers and decreased tumor markers. The group treated with thymoquinone from black seed oil did not develop liver cancer nodules, and the amount of new tumor formation was much less than the untreated group of rats.

From this finding the researchers concluded that thymoquinone had a beneficial role in the treatment of liver cancer, because of its potent ability to prevent cancer Cells from proliferating (Raghunandhakumar et al., 2013).

### **Saudi Arabian researchers confirm black seed extract and oil kill lung cancer cells**

Saudi Arabian researchers in 2014 investigated the anticancer activity of black seed oil and black seed extract against human lung cancer cells. Scientists exposed lung cancer cells to black seed oil or black seed extract for 24 h. They used 0.01 mg/ml to 1 mg/ml of the oil or the extract. After the exposure, the cancer cell viability was assessed. The results showed that both the black seed oil and the extract significantly reduced the viability and population of living cancer cells and altered the cellular morphology. They found that the greater the concentration used to treat the cancer cells, the greater the level of cell death (Al-Sheddi et al., 2014).

### **Researchers from Ohio State University confirm black seed components kill malignant brain cancer cells**

Researchers from Ohio State University published a study in 2013 indicating that glioblastoma is the most aggressive and common type of malignant brain tumor in humans, with a median survival of 15 months. They found that thymoquinone, the bioactive compounds of black seed oil has anti-oxidant, anti-inflammatory and anti-cancer actions, and it exhibits potent tumor killing action. It has selective cytotoxic properties for human cells, which means that it kills human cancer cells while not being harmful to normal cells. Thus, thymoquinone's ability to inhibit cancer cells from making clones of themselves and its ability to inhibit cancer cells from reusing cellular materials from other cells by means of autophagy, provide an exciting and emerging strategy for cancer therapy (Racoma et al., 2013).

The researchers further examined how thymoquinone selectively inhibits the ability of glioblastoma cancer cells of the brain and spinal cord from making clones of themselves. Thus, thymoquinone's ability to inhibit cancer cells from making clones of themselves and its ability to inhibit cancer cells from reusing cellular materials from other cells by means of autophagy, provide an exciting and emerging strategy for cancer therapy (Racoma et al., 2013).

### **Malaysian scientists confirm black seeds inhibit breast cancer**

A study, conducted in 2013 in Malaysia, addressed the anti-cancer efficiency of thymoquinone when it was used for long-term treatment of human breast cancer cell lines in the laboratory. Thymoquinone showed a sustained ability to inhibit breast cancer cell proliferation with long-term treatment. The length of inhibition was determined by the size of the thymoquinone dose. Larger doses produced greater inhibition (Motaghdad et al., 2013).

### **Malaysian scientists confirm black seeds kill leukemia cells**

In a separate study in 2013 Malaysian researchers noted that there is a growing interest in the use of naturally occurring compounds from traditional medicine which have anti-cancer potential. Thymoquinone, active ingredient isolated from *Nigella sativa* having anti-cancer effect was assessed in an acute leukemia cell line. Researchers found that treatment of leukemia cells with thymoquinone encouraged apoptosis resulting in cell death. These results indicate that thymoquinone from black seeds could be a promising agent for the treatment of leukemia (Salim et al., 2013).

### **Researchers from the University of Mississippi Medical Center confirm black seed oil inhibits and kills colon cancer cells**

Researchers from the University of Mississippi Medical Center studied epigallocatechin-3-gallate, the most abundant catechin found in green tea, and thymoquinone found in black seeds. Results of this study showed that green tea catechin and black seed thymoquinone produced significant cancer cell destruction and interfered with cellular metabolic functions. The researchers concluded that the natural agents from *N. sativa* may offer a safe alternative treatment for colon cancer (Norwood et al., 2007).

### **German researchers successfully treat cancer with thymoquinone from black seeds and conventional cancer drugs**

In 2011, German researchers described the drug doxorubicin as being a mainstay of cancer chemotherapy despite its cardiotoxicity and its limited ability to treat multi-drug resistant cancers. Recent studies revealed a protective effect of thymoquinone, a non-toxic constituent of the essential oil of *Nigella sativa*, against doxorubicin-induced cardiotoxicity. They found that thymoquinone is a booster for the anticancer effect of the chemotherapy agent doxorubicin in cancer cell lines (Effenberger-Neidnicht and Schobert, 2011).

### **Singapore researchers treat cancer with thymoquinone from black seeds and conventional cancer drugs**

In 2013, researchers from Singapore reported that there are a limited number of therapeutic agents for cancer, and cancer cells are developing resistance to these agents. Thus, there is a need to discover novel agents to treat breast cancer. The antitumor activities of thymoquinone, isolated from black seed oil, were used to treat mice with breast cancer. Thymoquinone treatment was found to suppress tumor growth, and this effect was further enhanced by combining it with the chemotherapy drug doxorubicin (Woo et al., 2013).

### **Researchers from Wayne State University in Michigan conduct clinical trials with human cancer patients**

Researchers from Wayne State University in Michigan found that their review of published reports about black seeds indicate that further in-depth studies are warranted. They specifically suggested to study the bioavailability and Phase-I toxicity profiling of black seeds oil in human subjects. The results from such studies will

be instrumental in advancing this field in support of initiating clinical trials for testing the effects of this ancient agent in cancer therapy (Mercy, 2015).

### **Researcher from Oman recommends conducting clinical trials with human cancer patients**

A researcher from Oman states that thymoquinone, the bioactive constituent of black seed oil, has already been extensively studied. The use of thymoquinone in test tube research with human cancer cells and in animal studies with induced forms of cancer has also been thoroughly investigated. As a result, a considerable amount of information has been generated, thus providing a better understanding of the anti-proliferating activity of this compound. Therefore, it is appropriate that thymoquinone should move from testing on the bench to clinical experiments (Abukhader, 2013).

### **Black seed strengthens human immunity**

The role of black seed in increasing human immunity was not clear before 1986, when Dr. Qâdi and his colleagues started a series of researches in the United States. Afterwards, many researches were launched in various countries. Dr. Qâdi proved that the use of black seed strengthens immunity since the ratio of the T assistant lymph cells increased by an average of 72% compared to the restraining cells. Also, there was a considerable development in the activity of natural killer cells with an average of 74%. The results of many modern researches supported the findings of Qâdi. It was reported that amongst the findings are the results published by the International Immunity Magazine in August 1995 about the effect of black seed on the outer lymph cells and the activity of white blood multi-nucleus cells (<http://www.islamweb.net/en/article/157049/black-seed-nigella-sativa-a-cure-for-every-disease>).

### **Black seed extract treats cancer tumours**

In October 1999, the European Magazine of Cancer published an article on the effect of thymoquinone on abdomen cancer in rats. Likewise, in May 1998, a magazine specialized in anti-cancer researches published an article on the extracts of black seed as a treatment for cancer tumours. On April 2000, the Ethanol Medical Magazine wrote about the toxicity and immunity effects of ethanol extract from black seeds. Also, in February 1995, Medical Plants Magazine published an article on the effects of the black seed stable oil and thymoquinone on white blood cells (<http://www.islamweb.net/en/article/157049/black-seed-nigella-sativa-a-cure-for-every-disease>).

### **Indian scientists discover anti-tumour principles of black seeds**

In 1991 a study of black seed's potential anti-tumour principles by the Amala Research Centre in Amala Nagar, Kerala (India) lent further impetus to several scientists' suggestions for the possible use of black seed in the treatment of cancer. Using an active principle of fatty acids derived from black seed, studies with Swiss albino mice showed that this active principle could completely inhibit the development of a common type of cancer cells called Ehrlich ascites carcinoma (EAC). A second common type of cancer cells called Dalton's lymphoma ascites (DLA) cells, were also used.

Mice which had received the EAC cells and black seed remained normal without any tumor formation, illustrating that the active principle was 100% effective in preventing EAC tumor development. Results in mice who received DLA cells and black seed showed that the active principle had inhibited tumor development by 50% less compared to mice not given the active principle. The study concluded, "It is evident that the active principle isolated from *Nigella sativa* seeds is a potent anti-tumor agent, and the constituent long chain fatty acid may be the main active component" ([https://archive.org/stream/BlackSeedsBenefits/Black-Seeds-Benefits\\_djvu.txt](https://archive.org/stream/BlackSeedsBenefits/Black-Seeds-Benefits_djvu.txt)).

### **Saudi Arabian researchers confirm black seeds are effective for *Helicobacter pylori* infection:**

In 2010, Saudi Arabian researchers indicated that a large number of diseases are ascribed to *Helicobacter pylori*, particularly chronic active gastritis, peptic ulcer disease and gastric cancer. They found that successful treatment of *H. pylori* infection with antimicrobial agents can lead to regression of *H. pylori*-associated disorders. So they undertook a study to evaluate the efficacy of black seeds for the eradication of *H. pylori* infection in 88 human non-ulcer dyspeptic patients.

Patients were randomly assigned to four groups. The groups received various combinations of clarithromycin and/or amoxicillin (antibiotics), omeprazole (anti gastric reflex drug), and black seed oil. Researchers found that black seeds possess clinically useful anti-*H. pylori* activity, comparable to triple eradication therapy (Salem et al., 2010).

### **Black seed improves the natural defense and repair mechanisms of the body**

Modern scientific studies have proven the immune enhancing effect of this blessed seed. It improves the natural defense and repair mechanisms of the body. It improves healing after surgery with less complications and faster recovery. It regulates blood pressure, enhances bile and breast milk production, and stimulates

sperm producing tissue. It is also known to be an effective antimicrobial agent and broncho-dilator ([http://www.oocities.org/mutmainaa/food/black\\_seed.html](http://www.oocities.org/mutmainaa/food/black_seed.html)).

### **Human trials in Germany confirm that black seed oil is the cure for allergies**

According to Wagner, studies also testify that an immune system, which has gone wrong, can be regulated by the strong effect of the oil. Schleicher has tested the effect of the oil on 600 patients. Through this study, he confirms that black seed is the cure for allergies in about 70% of the patients. Amongst them are allergies caused by pollen and dust, acne, neuro-dermatological illnesses, asthma, et cetera. Due to these benefits to cure allergies, Dr. Schleicher in Munich has decided to include the oil in his preventative treatment against colds and influenza. He noted that in the Middle East and South Asia, black seed oil has been used for thousands of years as a remedy for all sorts of allergies, inflammation and menstruation problems, boosting moral, depression; but especially against bronchitis, asthma and neuro-dermatitis as well as poor digestion and even impotency (<http://www.healthymuslim.com/print.cfm?mdhpn>).

### **Study of the effects of *Nigella sativa* on humans**

Scientists at the Cancer and Immuno-Biological Laboratory have found that black seed stimulates bone marrow and immune cells and raises the interferon production, protects normal cells against cell destroying effects of viruses, destroys tumor cells and raises the number of anti-bodies producing B cells. U.S. researchers have written the world wide first report on the anti-tumor affects of black seed oil (<http://www.manataka.org/page1413.html>).

### **Black seed components are anti-spasmodic, broncho-dilating and antihistaminic**

Two of the most volatile oils found in black seed are nigellone and thymoquinone which were first discovered in the herb in 1985. Nigellone offers both anti-spasmodic and bronchodilating properties which contribute to black seed's potency against respiratory ailments. It also acts as an antihistamine which helps to reduce the negative symptoms of allergy sufferers. Thymoquinone contains excellent anti-inflammatory and analgesic properties. It is also a strong anti-oxidant and helps cleanse the body of toxins. Both nigellone and thymoquinone work in conjunction with one another to enhance black seed's action against respiratory ailments. It also provides a healthy alternative to the more commonly prescribed cortisone based therapies used by allergy sufferers

(<http://www.khilafatworld.com/2012/02/health-benefits-of-black-seed-nigella.html>).

### **Black seed effective for the treatment of asthma**

There is potentially good news for the millions of worldwide asthmatics. The incidence of asthma is rising and it is a difficult complaint to treat. Certain African and Asian cultures have been using black cumin seed oil to ease respiratory complaints for many centuries. One of the main constituents of black seed oil is nigellone which helps relieve the breathing difficulties of asthmatics by dilating the bronchial tubes. Many asthmatics claim that they can either stop using their inhalers or at least reduce their use after being treated with black seed oil. *Nigella sativa* may help ease symptoms of asthma, according to a small study published in 2007. For three months, 29 adults with asthma took either a placebo or a *N. sativa* extract daily. Study results showed that those treated with *N. sativa* had significantly greater improvements in the frequency and severity of asthma symptoms (such as wheezing). Thymoquinone, one of the main active constituents of *N. sativa*, is superior to the drug fluticasone in an animal model of asthma. Another study in human subjects found that boiled water extracts of black seed have relatively potent anti-asthmatic effect on asthmatic airways. There is a patent in the UK on Asthma (UK - EP1709995) ([http://pjkim.altervista.org/nigella-sativa-health-benefits/?doing\\_wp\\_cron=1459507184.8864591121673583984375](http://pjkim.altervista.org/nigella-sativa-health-benefits/?doing_wp_cron=1459507184.8864591121673583984375)).

### **American scientists confirm black seed has antibiotic, anti-oxidant, antihistaminic, anti-mycotic and broncho-dilating effects**

Laboratory studies provided scientific support for the traditional use of the black seed and its derived products as a treatment for rheumatism and related inflammatory diseases. Tennekoon, et al. studied the possible hepatotoxicity of the black seed (Tennekoon et al., 1991). The Journal of American Scientists reports that black seed has a number of useful properties such as antihistamine, antioxidant, antibiotic, antimycotic and broncho-dilating effects (<http://www.islamweb.net/en/article/157049/black-seed-nigella-sativa-a-cure-for-every-disease>).

### **Black seed oil prevents cytomegalovirus**

In September 2000, the International Immunity Magazine also published a research on the effect of black seed oil in preventing cytomegalovirus on laboratory rats. Black seed oil has been tested as an anti-virus substance and the immunity acquired during the early stages of the disease was measured through determining the natural killer cells and other things (<http://www.eajaz.org/eajaz>

[/index.php?option=com\\_content&view=article&id=138%3Ablack-seed-a-cure-for-every-disease&Itemid=74&lang=en](#)).

### **Black seed oil normalizes abnormal immune reactions**

In addition, the excessive T-cell functions of the person suffering from allergies are stabilized through substances in black seed oil. The suppressed antibodies further stop the abnormally rising immune reactions. The excessive immune system is normalized and the large cell degranulation decreased (<http://www.manataka.org/page1413.html>).

IslamWeb in an article on "Black seed (*Nigella sativa*): A Cure for every disease" published on 14/03/2010 reports the following:

In October 1999, the European Magazine of Cancer published an article on the effect of thymoquinone on abdomen cancer in rats. Likewise, in May 1998, a magazine specialized in anti-cancer researches published an article on the extracts of the black seed as a treatment for cancer tumors. In April 2000, the Ethanol Medical magazine wrote about the toxicity and immunity effects of ethanol extract from the black seeds. Also, in February 1995, Medical Plants magazine published an article on the effects of the black seed stable oil and thymoquinone on white blood cells. Many other researches came out supporting these facts (<http://www.islamweb.net/en/article/157049/black-seed-nigella-sativa-a-cure-for-every-disease>).

### **German scientists confirm the antibacterial and antimitotic properties of black seed**

A scientist of international repute, named Hans Wagner published an article on the web. It summarizes many of the findings from scientific research papers and studies that have already been published. Wagner states:

"Recently, scientists around the world have confirmed the anti-bacterial and antimitotic effects of black seed oil. It is known that traditional medical practitioners in various countries around the world are using the oil against inflammation of all sorts as well as fungi infections. A remarkable reduction of blood sugar levels has also been found by scientists. Black Seed extracts have been found help to stimulate bone marrow and immune cells." (<http://www.befr.ebay.be/itm/blackseed-oil-habbatul-barakah-kalonji-black-cumin-size-60ml-double-deal/171709056122?hash=item27faa844>

7a,13).

### **A renowned Professor from the University of Munich says black seed extract develops immune system**

Professor G. Rietmuller, Director of Institute for Immunology at the University of Munich reports that black seed extract works positively on the immune system and could be used as a bio-regulator (<http://www.peashealth.com/how-does-black-seed-help-to-cure-arthritis/>). It has been scientifically proved that the immunity system is the only system that has the ability to combat diseases and produce cells that kill viruses. In *Antiviral Agents Bulletin*, U.S. Patents Sections it was also mentioned that black seed increases immune function.

### **Black seed oil boosts the body's immune system**

A weak immune system means that we are more prone to illness and attack from unwanted foreign invaders. There is ample evidence that black seed oil helps to boost our immune system keeping us fit and healthy. One study concluded that black seed oil taken daily could play a significant role in protecting us against diseases linked to the immune system such as cancer and HIV (Seward, 2015).

### **U.S. patent on the improvement of the immune system**

Recent research has provided evidence that most illnesses arise because of an unbalanced or dysfunctional immune system which cannot perform its primary function of defending the body optimally. Research also indicates that black seed contains an ability to significantly boost the human immune system - if taken over a period of time. There is a U.S. Patent on the Improvement of the Immune System (US 5,482,711) (<http://www.blackseedproducts.com/faqs/9-what-are-the-benefits-of-black-seed.html>).

### **Black seed cures pollen and dust allergies, asthma and neuro-dermatitis**

Experiences of doctors in Munich displayed that 70% of patients with allergic conditions, among them being pollen and dust allergies, asthma and neuro-dermatitis were cured by *N. sativa* (<http://www.asianhealthsecrets.com/black-cumin-seeds/>).

### **Anti-inflammatory and anti-tumour effects of black seed oil**

Professor Michael Meurer of the Dermatology Clinic in

Munich has, for a long time, been convinced about the success of black seed oil. From his experience, the oil helps stop inflammation and helps with neuro-dermatitis. He further mentions that at the International Cancer Congress in New Delhi, the anti-tumour effect of black cumin oil has been introduced to many scientists and doctors (<http://www.healthymuslim.com/articles/mdhpn-black-seed-oil-nigella-sativa-and-its-disease-preventing-effects.cfm>).

### **Anti-inflammatory, analgesic and antipyretic activities of *Nigella sativa***

The aqueous extract of *N. sativa* was investigated for anti-inflammatory, analgesic and antipyretic activities in animal models. The extract has an anti-inflammatory effect demonstrated by its inhibitory effects on Carrageenan induced paw edema (Al-Ghamdi, 2001).

### **Cytotoxic and immunopotentiating effects of ethanolic extracts of *Nigella sativa***

*In-vitro* cytotoxic screening of extracts of *Nigella sativa* seeds (Ranunculaceae) indicated cytotoxicity in the ethyl-acetate fraction (EAF) against different classes of cancer cell lines (Swamy and Tan, 2000).

### ***Nigella sativa* - a potential antiosteoporotic agent**

Ahmad Nazrun Shuid et al. report that *Nigella sativa* reverses osteoporosis in ovariectomized rats. (Evidence-Based Complementary and Alternative Medicine, Jan 2012, Vol. 2012:1-6).

### **Efficacy of *Nigella sativa* seed in dyslipidemia**

This pilot study aims to evaluate the effectiveness of *Nigella sativa* seed in the treatment of dyslipidemia. The official title of the study is "Effectiveness of *Nigella sativa* (Kalonji) Seed in Dyslipidemia": A Randomized Controlled Trial".

Dyslipidemia is a common risk factor for cardiovascular disease, the leading cause for morbidity and mortality among patients. *Nigella sativa* is an easily available and acceptable remedy to treat dyslipidemia and at a low cost. It is expected that by scientifically determining the effectiveness of this intervention it will lead to its widespread use. The study carried out in Phase 1, Phase 2 is to treat Hypercholesterolemia, Hypertension, Diabetes Mellitus and Metabolic Syndrome X. The study was sponsored by Aga Khan University. It provides a low cost alternative to treat dyslipidemia (Effectiveness of *Nigella Sativa* (Kalonji) Seed in Dyslipidemia,

ClinicalTrials.gov Identifier: NCT00327054, Aga Khan University, updated: June 30, 2015, <https://clinicaltrials.gov/ct2/show/NCT00327054>).

### **Black seed protects the liver from damage**

A healthy liver means a healthy body, which means a healthy mind. A poorly functioning liver will have widespread detrimental effects on the wellbeing. Besides the heart, the liver is considered to be the most important organ in our body. The liver is involved in nearly every bodily function and is vital in keeping our bodies free from hazardous toxins. Black seed oil can help speed up the healing process for those who have poor liver function. Researchers have recently revealed that black seed oil improves liver function and also helps to prevent damage and disease. The seed oil can also benefit our heart in a variety of ways. First of all, black seed oil is a rich source of omega acids which help strengthen the blood vessels and protect against arterial damage. The research carried out on rats in 2013 demonstrated that both liver and kidney disease could be treated with black seed oil and that it warranted further, more extensive trials in the future (<http://healthyfocus.org/top-10-black-seed-oil-health-benefits/>).

### **Black seed oil can protect patients undergoing chemotherapy or radiotherapy**

Research has proved that if the healthy parts of human bodies are destroyed by chemotherapy and radiotherapy black seed could reduce and maybe eliminate damage to healthy tissue. The research that has been cited clearly shows that black seed oil could prevent radiation damage to healthy tissue if it is given before radiation therapy and is continued on a daily basis after each treatment. The fact that there isn't any published research pointing to human clinical trials (despite the success with using black seed oil with animals) is a true offense against people who receive radiation treatment (<http://www.justhealthy.com/this-ancient-remedy-cures-all-diseases-hiv-aids-diabetes-cancer-stroke-stds-arthritis-more/>).

### **Black seed causes reduction of cholesterol level in blood**

Research has also demonstrated that black seed oil can significantly reduce cholesterol levels and lower blood pressure. A study conducted in 2008 concluded that over a period of 2 months, black seed oil taken daily had significantly positive effects on both cholesterol and blood pressure levels in patients with mild hypertension ([healthyfocus.org](http://healthyfocus.org)).

### **Black seed oil prevents hair loss, protects the skin and reduces weight gain**

Black seed oil has also been shown to help people lose weight, restore hair loss and keep it healthy, provide healthy skin benefits to give glow and healing, and strengthen the immune system to fight infections (Hasani-Ranjbar et al., 2013). There is some evidence that black seed oil can even have a positive cosmetic effect on your body. Possibly due to its antioxidant and antimicrobial qualities, black seed oil is said to restore follicle strength and prevent hair damage and loss. Researchers have also discovered that black seed oil could be beneficial to your skin in general as well as used to treat certain skin complaints such as eczema (Seward, 2015).

### **Anti-obesity effects of black cumin**

Black cumin is associated with anti-obesity effects, including reductions in body weight and waist and hip circumference, with Hasani-Ranjbar et al. (2013) noting:

“*Nigella sativa* [black cumin] showed a significant weight loss and reduced waist circumference with a mild reduction in fasting blood sugar, triglycerides and low-density lipoprotein levels.”

### **Treatment of acute tonsillopharyngitis**

Tonsillopharyngitis is characterized by tonsil or pharyngeal inflammation (that is, sore throat), mostly viral in origin. Black seed capsules (in combination with *Phyllanthus niruri*) have been found to significantly alleviate throat pain, and reduce the need for pain-killers, in human subjects (Ji, 2013).

### **Treatment of respiratory complications**

A randomized, placebo-controlled human study of chemical weapons injured patients found that boiled water extracts of black seed reduced respiratory symptoms, chest wheezing, and pulmonary function test values, as well as reduced the need for drug treatment. The seed (in combination with *Phyllanthus niruri*) also found to alleviate throat pain in humans (<https://sheama-butters.com/products/black-cumin-seeds>).

### **Respiratory health**

A number of studies have indicated black cumin may be helpful for asthmatics. In one study, thymoquinone was found to be instrumental by reducing two inflammatory mediators of asthma and other inflammatory processes

(Mansour and Tornhamre, 2004). Another study confirmed the anti-asthmatic effect of black cumin extract, showing it acts as a bronchodilator (Boskabady et al., 2010).

Further, black cumin seeds act as a relaxant and display both anticholinergic (reducing spasms in smooth muscle) and antihistaminic (blocking allergic reactions) effects. The thymoquinone in black cumin seeds was even found to be *superior* to the asthma drug fluticasone (a synthetic glucocorticoid) (Keyhanmanesh et al., 2010).

### **Treatment of opiate addiction/withdrawal**

A study on 35 opiate addicts found black seed as an effective therapy in long-term treatment of opioid addiction and withdrawal. The seeds are also used in cases of long-term opiate addiction and withdrawal (<https://sheama-butters.com/products/black-cumin-seeds>).

### **Prevention of Alzheimer's disease**

Thymoquinone extract from *N. sativa* prevents Alzheimer's associated neurotoxicity. Thymoquinone (TQ), a bioactive constituent of *N. sativa* Linn. has demonstrated several neuropharmacological attributes. In the present study, the neuroprotective properties of TQ were investigated by studying its anti-apoptotic potential to diminish  $\beta$ -amyloid peptide 1-40 sequence ( $A\beta$ 1-40)-induced neuronal cell death in primary cultured cerebellar granule neurons (CGNs) (Ismail et al., 2013).

### **Thymoquinone also prevents brain pathology associated with Parkinson's disease**

Thymoquinone from *N. sativa* extract protects cultured neurons against ASN-induced synaptic toxicity, a pathology observed in the brains of patients with Parkinson's disease and dementia (Alhebshi et al., 2013).

### **Black seed helps in the treatment of insomnia**

Black seed oil is a natural remedy for sleep. Research reveals that black seed oil can help eliminate sleep disorders and make one to sleep better and more restfully. Those suffering from insomnia should take one teaspoon of black seed oil and one teaspoon of honey in warm milk one hour before going to sleep. Rub the temples with the oil and turn off the lights. Those taking the oil should have only a light dinner, avoid sugary product just before bedtime. This helps to rest the pancreas that produces insulin.

According to Ahmad et al. (2013), "The seeds of *N.*

*sativa* have been widely used in the treatment of different diseases and ailments. In Islamic literature, it is considered as one of the greatest forms of healing medicine. It has been recommended for using on regular basis in Tibb-e-Nabawi (Prophetic Medicine). It has been widely used as antihypertensive, liver tonics, diuretics, digestive, anti-diarrheal, appetite stimulant, analgesics, anti-bacterial and in skin disorders."

According to Butt and Sultan (2010), "Recent pharmacological investigations suggested its [black cumin's] potential role, especially for the amelioration of oxidative stress through free radical scavenging activity, the induction of apoptosis to cure various cancer lines, the reduction of blood glucose, and the prevention of complications from diabetes.

It regulates hematological and serological aspects and can be effective in dyslipidemia and respiratory disorders. Moreover, its immunopotentiating and immunomodulating role brings balance in the immune system. Evidence is available supporting the utilization of *N. sativa* and its bioactive components in a daily diet for health improvement."

### **Culinary uses for black cumin**

The benefits of black cumin are tremendous. The oil is available in supplement form, but one can easily add the seeds to his or her regular meals. It is popular in North Indian, Pakistani, Bangladeshi and Iranian cuisines, with a warm, slightly bitter flavor. One can add the seeds to casseroles, stir fries, salad dressings (try them mixed with lemon, cilantro etc.) and baked goods, sprinkle them on salads, or even add them to one's coffee or tea. One can also make black cumin tea by pouring hot water over the seeds (about one tablespoon) and letting it steep for 10 min ([http://www.kitchendoctor.com/herbs/black\\_cumin.php](http://www.kitchendoctor.com/herbs/black_cumin.php)).

Aside from their culinary uses, a mixture of black cumin, honey and garlic makes a powerful tonic for soothing coughs and boosting immunity, especially during cold and flu season or if you feel like you're coming down with an infection ([http://www.kitchen-doctor.com/herbs/black\\_cumin.php](http://www.kitchen-doctor.com/herbs/black_cumin.php)). Black cumin oil can even be used topically to treat psoriasis and eczema or mixed with facial cream to moisturize and soothe your skin.

### **Aqueous extract of black seeds is safe to consume**

Recent studies of the oral administration of aqueous extracts of the seeds of *N. sativa* for 14 days have been shown to cause no toxicity symptoms in male Sprague-Dawley rats (Tennekoon et al., 1991). The safety of consuming *N. sativa* seeds was also recently reported by Al-Homidan et al. (2002), whereby the seeds did

not affect the growth of 7-day-old Hibro broiler chicks when fed to them at 20 and 100 g/kg of the diet for 7 weeks.

### **Use of black seeds is safe in pregnancy**

Generally black seeds have no side effects. The extract is safe to consume. According to Mission Islam, Asma Rice, writes in her detailed article on black seed that many Muslim ladies take it during their pregnancy without any problem. She confirms to have taken the remedy herself during all her pregnancies without any side effects. However, it is always recommended to consult a doctor especially if one's condition needs medical attention. Pregnant women should consult professional medical care provider before taking black seed or its oil during pregnancy. It is recommended that pregnant women whose wombs are sensitive take very low dosage of the extract.

### **Precautions**

Safety of extracts of black seed in young children has not been established. Patients with liver or kidney disease are advised not to use this product unless a physician directs them to do so. Black seed extract is reported to lower blood sugar levels. So it is useful in the treatment of diabetes mellitus. Modern researchers have recommended an effective dose of 2 g black seed daily for three months for complete cure from diabetes. However, a diabetic patient is advised to consult with a physician before using the extract.

### **Side effects**

Black seed is a safe and effective herb that can be used by almost anyone. In general, black cumin seed extract is not associated with serious side effects. No irritations or side effects are caused when the right dose is correctly applied. However, it has been reported that black seed extract has a very low degree of toxicity, and may cause significant negative effects on liver and kidney function. A recommended daily allowance (RDA) has not been established for the extract, so it is wise to consult with an experienced physician before beginning any internal administration.

### **Black seed has United States and United Kingdom patents**

Due to safety as well as efficacy, black seed currently has now five separate patents in the U.S. and one in the UK. These are: treatment of diabetes (US 6,042,834),

inhibition of cancer cell growth (US 5,653,981), improvement of the immune system (US 5,482,711), viral infections (US 6,841,174), psoriasis (US 6,531,164) and Asthma (UK - EP1709995).

### **Method of use and dosage**

Black seed is available as pure oil and capsule forms. Either form may be taken preventively and for immune support. It is imperative to purchase organic, cold pressed oil that is free of additives. Most often, the extract is produced by a process referred to as cold pressing. Temperatures not higher than 140 to 176°F (60 to 80°C) are applied to the seeds to help release the oil and preserve its benefits.

It is always recommended that every medication should be taken in the right dose. A small dose may not benefit but it does not harm but an overdose definitely may pose a risk. Eating in large quantities does not mean that healing will be faster. The maximum recommended dose by most herbalists is 2 teaspoon a day. It is always better to take a small dose. A general recommendation is to take seven small seeds crushed or one teaspoon of black seed oil. It is recommended to take the dose under the guidance of an expert and according to the ailment. Generally, most experts advise that it should not be taken in large quantities. A maximum of two table teaspoon a day of the oil or 500 mg of black seed is considered to be the right dose. In a study which was conducted in Munich, 600 patients who suffered from allergy were given 500 mg of black seed for 3 months. The success rate was found to be 85% (<http://www.peashealth.com/black-seed-a-miracle-cure/>).

The oil is the most effective form for consuming black cumin, because the oil is more concentrated than whole seeds and is more readily assimilated. Also, because of its potent, absorbable concentration, only 1 teaspoon is needed per dose. It is usually recommended to take 1 teaspoon of the oil two times per day for therapeutic effects, on an empty stomach before meals and bedtime. Black cumin can be taken once daily as a preventative measure or for a healthy maintenance dose for all illnesses and life-long wellness.

### **Recommended dosage for cancer therapy**

Recent scientific studies conclude that black seed oil offers a powerful protective effect against radiation and chemotherapy, and is a potent anti-cancer agent. There are some websites that specify daily dosage for the use of black seeds and black seed oil for the treatment of cancer. We recommend that for a cancer patient the benefit from taking black seed or its oil is best achieved when taking daily doses for a period of not less than three months. So for cancer, we recommend three teaspoons daily in divided doses combined with a healthy

cancer diet and exercise program. Continue the medication for a considerable period of time for positive results. The Prophet (ﷺ) in the beginning of his statement said, "Use this seed regularly." However, one can eat it raw, add a teaspoon to one's salad or mix it with a good quality honey. When taken regularly as part of a healthy lifestyle, black seed helps to stabilize and rebuild our body's defense mechanisms in a gentle and natural way. It is an ideal supplement for health and wellbeing.

### **Recommended dosage for arthritis and head cold**

For arthritis, swallow capsules; apply pure oil to affected area. For respiratory problems, dilute oil (1 part black seed oil to 5 parts olive oil), rub on chest and back; heat some oil and inhale the vapors. For head cold, rub forehead and sides of face close to the ears with black seed oil. As an energy tonic, take the oil in orange juice in the morning. Black seed also relieves insomnia. For sleep disturbances, take one teaspoon of Black Seed oil and one teaspoon of honey in warm milk. Rub the temples with the oil and turn of the lights.

### **Recommended dosage for treating other ailments**

For specific diseases two or three teaspoons daily are suggested. Sometimes it is taken with honey and sometimes it is applied to the skin. One teaspoon seems to be a daily dose to support health. To improve the immune system, take one teaspoon daily mixed with raw honey or fresh juice one hour before breakfast. I urge the clinical pharmacists for researching the individual specific health concerns to find the appropriate treatments and the duration that will work effectively for individual situation.

### **Number of diseases so far cured by using black seed and its oil**

According to the previous and recent scientific researches carried out in various parts of the world, black seed is found effective in providing healing for 129 types of human ailments (Table 1) including 16 different types of cancer, diabetes, asthma, cold, hypertension, Alzheimer's disease, Parkinson's syndrome and AIDS.

## **DISCUSSION**

After reviewing the findings of most of the scientific researches published in the internet on the use of black seed extract, seed's oil and the isolated bioactive compound, thymoquinone, it is concluded that both black seed extract and black seed oil possess significant anti-

cancer properties that have been shown by all these studies. But despite several decades of very positive research on using black seed oil against cancer, researchers have rarely advanced their work into human clinical testing, even though the benefits are strong and the risks of negative side effects are extremely small (Thomas, 2014). Moreover, despite the tremendous success with using black seed oil there is not much published research pointing to systematic human clinical trials.

Since black seed has been proven to be non-toxic to healthy human cells, then why are the scientists still doing laboratory research or delaying in undertaking systematic and target-oriented human trials?" To further explain we must say that black seeds and black seed oil are food. They are completely edible and very safe. They do not have harmful side effects. They have been used for flavoring food and have been used as daily tonics and remedies for thousands of years. It is a safe and promising anticancer agent. It protects the heart and other vital organs from the painful side effects of chemotherapy and radiotherapy. Thymoquinone, the bioactive constituent of the oil of black seed (54%), has been shown to exert anti-inflammatory, anti-oxidant and anti-neoplastic effects both *in vitro* and *in vivo*. This compound is also safe. Therefore, there is no need to make further test tube research. Research that is currently needed is the protocol for using black seed or its oil in a clinical setting with cancer patients. It is time for planned clinical trials. So we urge the global scientific community to begin systematic human clinical trials without wasting any more time.

It is necessary to mention it that although the statement on *N. sativa* was made by the unlettered Prophet (ﷺ) of Islam, the non-Muslims were more serious than the Muslims in conducting the research on black seed. They had the strong faith that unless under divine inspiration the Prophet (ﷺ) could not have said so. Therefore, they had gone all the way to find out the truth and authenticity of the statement, and they eventually succeeded in verifying the truth of the statement. We know that light, wind and oxygen bestowed by Allah (God) are for all living beings. Gifts of science and nature are also for every people on the face of the earth. Similarly the Prophetic traditions on healing are for the entire mankind.

They are not only for the Muslims, but for the people of all nations and in all ages, irrespective of their religious beliefs, colour, language and creed. Anyone can obtain the benefits of his statements on health and hygiene, and sickness and cure. It is known that until recently not many people in the U.S. and UK have heard of black seed. But it is used by a large portion of the world's population and it has been around for hundreds of years as a natural remedy for a variety of ailments. It has been known to cure just about anything from allergies to hypertension, and then to cancer. The oil is an effective anti-oxidant, anti-bacterial, and anti-inflammatory remedy for many

**Table 1.** List of diseases curable by black seeds and its oil.

1. Liver cancer	36. Migraines	71. Blood clotting	106. Parkinson's disease
2. Brain cancer	37. Earache	72. Osteoporosis	107. Alzheimer's disease
3. Skin cancer	38. Backache	73. Dizziness	108. Bacterial infections
4. Pancreatic cancer	39. Snakebites	74. Polio	109. Acute tonsillopharyngitis
5. Cervical cancer	40. Rheumatism	75. Fatigue	110. Follicle strength restoration
6. Breast cancer	41. Bronchial asthma	76. Hair damage	111. Neuro-dermatological illnesses
7. Bone cancer	42. Old tumors	77. Indurations	112. Increase milk production
8. Stomach cancer	43. Immune boosting	78. Liver tumors	113. Vermicide
9. Prostate cancer	44. Abdominal pain	79. Eczema	114. Abdominal tumour
10. Colon cancer	45. Skin rashes	80. Anti-aging	115. Skin conditioning
11. Lung cancer	46. Skin diseases	81. Kidney diseases	116. Opiate addiction/withdrawal
12. Kidneys cancer	47. Hepatic disorders	82. Scorpion stings	117. <i>Helicobacter pylori</i> infection
13. Cervix cancer	48. Blood homeostasis	83. Baldness	118. Increased urine flow
14. Esophagus cancer	49. Digestive disorders	84. Tachycardia	119. Hay fever
15. Melanoma	50. Memory loss	85. Bradycardia	120. Allergies
16. Lymphoma	51. Abortion	86. Skin parasites	121. Bladder infection
17. AIDS	52. Chest pains	87. Jaundice	122. Sore throat
18. Amoebic dysentery	53. Eye pain	88. Ear infection	123. gum bleeding
19. Shigellosis	54. Labor pains	89. Gallstones	124. depression and infertility
20. Abscesses	55. Heart burn	90. Impotence and sexual weakness	125. Lack of concentration
21. Mouth ulcer	56. Laziness	91. Mental degeneration	126. Menopausal complaints
22. Rhinitis	57. Ulcers	92. Hemorrhoids	127. Hormonal disorders
23. Acne	58. Diuresis	93. Various infections	128. Nausea and vomiting
24. Wrinkles	59. Epilepsy	94. Nasal congestion	129. Gastrointestinal complaints
25. Psoriasis	60. Edema	95. Bronchial disorders	
26. Pain relief	61. Cold and influenza	96. Menstrual complaints	
27. Wounds and burns	62. Itching	97. Promotion of lactation	
28. Flatulence	63. Neuro-ermitis	98. Auto-immune diseases	
29. Diarrhea	64. Dyslipidemia	99. Inflammatory diseases	
30. Constipation	65. Dispiritedness	100. Promote menstruation	
31. Skin care	66. Diabetes	101. Intestinal parasites	
32. Dandruff	67. Whooping cough	102. High blood pressure	
33. Hair loss	68. Obesity	103. Low blood pressure	
34. Headaches	69. Dementia	104. Expelling worms	
35. Toothaches	70. Schistosomiasis	105. Respiratory complications	

ailments.

Although there were more than 400 herbs in use before Prophet Muhammad (ﷺ), and recorded in the herbals of Galen and Hippocrates, black seed was not one of the most popular remedies of that time. It has been reported that *N. sativa* is the only plant on the face of the earth on which highest number of studies had been carried out.

Over 5000 research projects have been undertaken by students and papers published on this seed, aqueous extract and its oil. Scientists carried out extensive phytochemical, pharmacological, toxicological and microbiological investigations on the black seed and its oil. The researchers conducted laboratory experiments using intact animals and clinical trials using human volunteers. As a result, black seed being a "remedy of the

Prophet (ﷺ)", is now considered to be a cure for every disease on the face of the earth; and due to its tremendous potentials, its usage and popularity have increased significantly. Due to this reason, it is marketed and sold by many businesses. Amazing Herbs Nutraceuticals is one of the first companies in the USA to manufacture and distribute a complete line of nutritional supplements made with black seed and black seed oil. The product line consists of cold-pressed black seed oil, black seed oil and soft-gel capsules.

Table 1 shows that black seed and its oil can successfully treat over 129 different types of human ailments. The Human Effect Matrix looks at human studies (it excludes animal and *in vitro* studies) to tell one what effects *N. sativa* has on the body, and how strong

these effects are (<https://examine.com/supplements/nigella-sativa/#citations>). So we call upon the scientific community to let us know if there is any disease which is not treatable by black seed. Is there any single drug or pharmaceutical preparation other than black seed that can cure such a large number of diseases? With all of these numerous health benefits, we cannot think of any reason why everyone on the planet should not have black seeds or its oil in their medicine cupboard or First Aid Box! Therefore, we urge the developed world, particularly the West to discover black seed and accept it as an invaluable health tonic. Due to its huge medicinal potential it might well be a healthy, natural and safe alternative to commercial pharmaceutical drugs.

Recent scientific researches reveal that black seed or its oil can successfully treat 16 different types of cancer including diabetes, AIDS, rheumatism and many other ailments. Therefore, this Prophetic remedy can easily replace modern chemotherapy and radiotherapy usually prescribed for treating cancer patients. Its effectiveness is supported by a large number of modern scientific researches. Therefore we humbly opine that it can be a safe and very effective alternative to modern medicine for the treatment of cancer, diabetes, AIDS etc. in terms of cost-effectiveness. The modern chemotherapy and radiotherapy cost from \$5000 to \$10,000 or even more, whereas less than five dollars will be adequate for the cancer therapy using black seed and patients do not need to remain admitted in hospitals. The treatment can be done at home. Therefore, the cost of treatment will be almost nothing.

We are not aware of the success rate of modern cancer therapy. But post therapy complications of this therapy are very severe, whereas there are no side effects of black seed remedy. If someone is on chemotherapy it is thought that his recovery is almost negative. Therefore, it is the views of the authors that in case all existing therapies failed to provide healing to someone, the physician should advise him to resort to this marvelous Prophetic remedy. We recommend that there should be a separate unit in each hospital for healing with black seed. Because, black seed has proved to be a genuine universal remedy and it is an extraordinary herb which can be the primary health-bolstering agent of the millennium. It can therefore, be concluded that black seed is an All-In-One therapy.

Recently a book titled, *We Lost the War on Cancer - Review of Alternative Cancer Therapies*, authored by John Thomas and edited by Brian Shilhavy, has been published as kindle edition. Amazon.com rates the book as one of the best books of the month of April 2016. In his book John Thomas writes:

The people of America have lost war on cancer and they now want a review of the alternative cancer therapies. At the beginning of the last century, one person in twenty would get cancer.

In the 1940s it was one out of every sixteen people. In the 1970s it was one person out of ten. Today one person out of three gets cancer in the course of their life. So the situation is serious. In terms of cost of cancer therapy the situation is alarming. In 2014, there were an estimated 1,665,540 new cancer cases diagnosed and 585,720 cancer deaths in the US. In 2014 in the US the medical costs were estimated to be \$6 billion. The NCI states that the medical costs of cancer care will be nearly \$125 billion, with a projected 39 percent increase to \$173 billion by 2020. All of the current research on cancer drugs is based on the premise that the cancer market will grow, not shrink. It has been reported that the current cancer industry prospers while treating cancer, but cannot afford to cure.

Although there have been various alternative cancer therapies that have been proven effective, but that are not approved by the FDA, because pharmaceutical companies are opposed to the development of all forms of cancer treatment. They work together with the US FDA and various US government cancer research funding agencies to prevent new treatments from being approved for use by physicians. The reason is that most alternative cancer treatments are much less expensive than surgery, radiation, and chemo. They are also more effective and have many fewer or no unwanted side effects. The great fear of the pharmaceutical industry is that a non-patentable and inexpensive cure for cancer might put them out of business. These organizations exist to turn a profit from cancer treatment, which is measured in the billions of dollars every year. They are in the business of treating cancer not curing it (Thomas, 2014).

In view of the above global scenario there is an urgent need for introducing alternative cancer therapies. Out of the alternative therapies we recommend black seed therapy prescribed by the Prophet Muhammad (ﷺ) for all diseases, of which cancer is one. Since Islam is the complete and eternal way of human life, it includes all aspects of human life, including disease, medicine and health, for the benefit of humankind during his transient stay on earth. This is because man needs to remain well, free from sickness to fulfill his brief mission on earth. Therefore, all we need is the implementation of divine cure for this fatal disease, not man-made cure so far discovered. Although the Prophet's arrival was not as a doctor or pharmacist he was inspired by Allah SWT to make over 1000 statements on healing as divine cure for the benefit of man, and it is very amazing that not a single tradition of the Prophet (ﷺ) is found to be

contradictory to the basic principles of modern medical science. We therefore urge the US and other developed countries to consider black seed therapy for conducting systematic and organized clinical trial without any delay, and if successful let FDA approve it as commercial drugs without any patent right for the interest of health of the common people of the world.

## CONCLUSION

The above findings of modern scientific research confirm the truth of the Prophet's statements mentioned fourteen centuries ago, which says that "*Nigella sativa* (black seed) is a remedy (cure) for all diseases (ailments) except death". Moreover, the Prophet (ﷺ) made the statement at a time when there was no discovery of medical science or pharmacy. This further confirms that no one can claim the credit of knowing all these hidden medical facts fourteen centuries ago, except a Prophet (ﷺ) and a chosen man of God (Allah), because Allah reveals in the Qur'an that "He does not speak anything of his own desire..." (Surah An-Najm 53:3).

## ACKNOWLEDGEMENT

The authors are grateful to the publishers of various scientific research papers for obtaining information from therein and citing the results of scientific studies on black seed and its oil as well as website owners for giving us access to view their sites.

## DISCLAIMER

Black seed is not a cure or a substitute. The information contained in this review article is the findings of hundreds of modern scientific researches carried out on whole black seeds and its water and alcoholic extracts. It is for academic purposes only and should not be used for diagnosis or to guide treatment without the opinion of a health professional. Any reader who is concerned about his or her health, has failed to have any improvement in his/her own health condition following a modern therapy, which led him/her to lose faith on the efficacy of modern medicine, can use this remedy on his or her own. However, prior to using a particular Prophetic remedy he should consult an experienced physician for advice.

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**Citation:** Hussain DAS, Hussain MM, 2016. *Nigella sativa* (black seed) is an effective herbal remedy for every disease except death – a Prophetic statement which modern scientists confirm unanimously: A review. Adv Med Plant Res, 4(2): 27-57.

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