



# A Literature Review on the Immunomodulatory Effects of Nigella Sativa (Black Seed)?

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A Science of Medicine  
The Art of Care

March 2012

For years, Nigella Sativa, or Black Seeds, has been used to treat a variety of ailments across cultures. Used for a variety of purposes, ranging from culinary to medicinal, the herb has a rich history of application and it's steeped in folklore, both in the West and the East. Known under a variety of names, including Black Cumin, Kalonji, Kusheng and Black Caraway, it has been referenced in various religious text, where it has been praised for its multitude of properties and applications.

Traditionally used for respiratory, gastrointestinal, rheumatic, nervous system and inflammatory disorders, it has also been applied as an antimicrobial agent and an immune-modulatory agent. Black seed is, according to Unani-Tibb classification, Hot in the first degree, and Dry. This makes it particularly effective ailments with a Cold and Moist Temperament. This includes colds, flu, pneumonia, gastrointestinal problems, hyperglycaemia and microbial infections.

According to the Unani-Tibb philosophy, infections and disorders result when there is an imbalance between the humours of the body. Physis works most effectively when the humours are balanced, and this is where the strength of Black seed resides: it's particularly effective in treating ailments that have a Cold and Moist, Moist and Hot, and Hot and Moist temperament. It works against infections/disorders that require an over abundance of Moistness, like Helminths, influenza, fungi and bacteria.

Black seed has been enjoying a lot of clinical research activities, specifically focusing on the various chemical constituents. Many compounds have been identified, which have great therapeutic value. Some of the more prominent constituents include: Nigellicine, Nigellidine, Thymoquinone, Dithymoquinone, Thymol and Arvacrol. These chemicals, as well as some other identified ones, make Black Seed effective as an: analgesic, anti-oxidant, anti-inflammatory, anti-cancer, anti-fungal, anti-bacterial and immune stimulant. All of these correlate to the traditional application of Nigella sativa and its essential oil.

The immune system is the body's primary defence against infection and illness. Comprising various systems, tissues and cell types, it protects the body by eliminating foreign bodies and toxins, destroying bacteria and viruses, as well as by removing damaged tissue and cells within the body. In order for the immune system to function properly and effectively, the humoral balance in the body needs to be maintained.

Clinical research has focused on the effects that extracts of Black Seed have on the various components of the immune system. The majority of the compounds have anti-oxidant properties, which aid the body in repairing itself by removing free radicals. This facilitates the immune system in its activities.

Extracts of Nigella Sativa have also been found to promote B-cell production and activity, as well as that on NK cells. Helper T-cells also benefits, and the extracts have been indicated to have anti-tumour activities.

Black Seeds extracts are of vital importance to cancer patients who are immunocompromised. It stimulates the bone marrow, leading to increased production of megakaryocytes, macrophages, platelets as well as red blood cells. All these are necessary to protect the body against opportunistic infections.

*Nigella Sativa* has interferon-like activities as well. The extracts block the enzymes and inappropriate gene products in nucleic acid synthesis and metabolism. This is of vital importance for South Africa, where HIV/AIDS, and accompanying opportunistic infections, pose an immense risk to health and healthy living