

## Application of Black Cumin (*Nigella sativa*) Seed as Functional Food

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### INTRODUCTION

Plant based functional foods are gaining popularity worldwide due to their curative applications. The health claims associated with the utilization of plants are due to their rich Phytochemistry (Tapsell et al., 2006). Herbs and spices have been used traditionally as flavoring agents to improve the organoleptic and nutritional properties of the food products and also used as preservatives in food industries. Herbal drugs and essential oil produced from black cumin seed have great medicinal value to treat various diseases. Black cumin seed commonly known as “kalonji” or “kala jira” are the seeds of *Nigella sativa* and it is an annual herbaceous plant belonging to the Ranunculaceae family (Sultana et al., 2018). The spice has numerous medicinal properties and extensively used in unani, ayurveda, sindha and other ethnopharmacy systems worldwide. Black cumin seed are native of Eastern Europe and Western Asia. In USA black cumin seed are classified as GRAS (generally recognized as safe). They are used as functional food as whole or by extracting its essential oil. Black cumin seed and its Essential oils have been used as spices, preservatives and also as Nutraceuticals and functional foods.

### Availability of black cumin seed

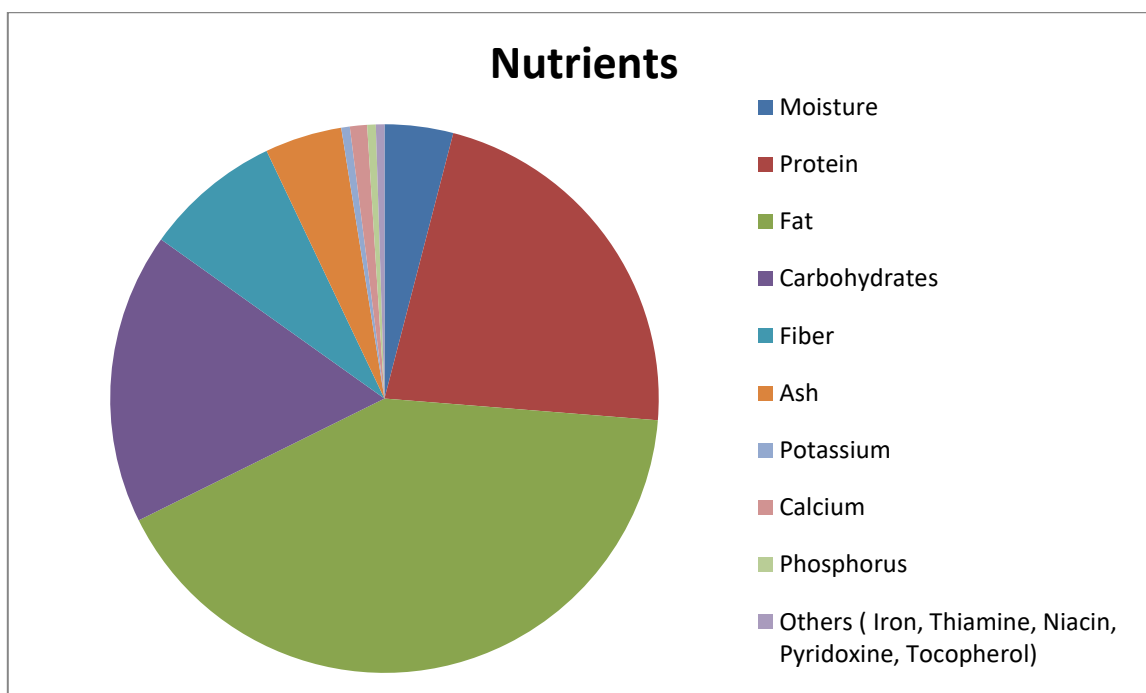
Black cumin seed plants may have been originally grown in Turkey or Italy, and has been grown in India from many decades. It is a typical condiment used in the Asian and Middle Eastern dishes. Black cumin seed relevantly identified as the “seed of blessings” (Gaur et al., 2017) & is studied as one of the best curative herb of the eternity. It is produced on kalonji bushes from where it got its name kalonji. Major black cumin seed cultivators are Egypt, Iran, India and Morocco. United States is the largest producer of black cumin seed oil. In India it is grown commercially in Punjab, Himachal Pradesh, Bihar, Jharkhand, Assam, West Bengal and Andhra Pradesh.

Small scale farming is also done in Uttar Pradesh, Rajasthan, Madhya Pradesh and Tamil Nadu states. Black cumin seed has been used as spices from former ages in India and is considered as one of the major ingredients in making pickles because of its preservative properties. It is approximately produced in about 9000 hectare area with productivity of about 7000-8000 tones in India (Huchchannavar, 2019).

**Nutritional information about black cumin seed**

Nutritional composition of black cumin seed (per 100 gram) (Muhtasib et al., 2006)

Nutrients	Quantity
Moisture	4 g
Protein	22 g
Fat	41 g
Carbohydrates	17 g
Fiber	8 g
Ash	4.5 g
Potassium	0.5 g
Calcium	1 g
Phosphorus	0.5 g
Iron	10 mg
Thiamine	1.5 mg
Niacin	6 mg
Pyridoxine	0.7 mg
Tocopherol	34 mg



Chemical composition of black cumin seed (Amin, 2012)

Constituent	Range (w/w)
Linoleic acid	44.7-56
Oleic acid	20.7-24.6
Linolenic acid	0.6-1.8
Arachidonic acid	2 - 3
Palmitoleic acid	3
Eicosadieonic acid	2 - 2.5
Palmitic acid	12 – 14.3
Myristic acid	2.7 - 3
Steric acid	0.16
Sterols	0.5

### Uses of black cumin seed (Traditional, Medicinal, Nutraceutical, and Functional foods)

Black cumin seed have been utilized since centuries for its curative and culinary properties. Black cumin seed is used as flavorings agents that has been added to several traditional Indian cuisines along with herbal medicine to treat variety of ailments. Traditional uses of cumin seed involves lowering inflammation, improves urination, forbidding acidity and calm down muscular pain. The oil of black cumin seed which is obtained by steam distillation, is used for flavoring liquor, confectionery items and seasoning. It has also been used for the treatment of indigestion, jaundice, diarrhea, flatulence, nausea, morning sickness and atonic dyspepsia. Phytosterols are major part of human appetite and are achieving great interest due to their effective nutraceutical and medicinal functionality that aids in lowering down the low density lipoprotein and total cholesterol level. The total sterols content of black cumin seed oil determined by various researchers was found in between 18 - 42% of the unsaponified matter. The major sterols identified were  $\beta$ -sitosterol, campesterol, stigmasterol, and 5-avenasterol.

The Prophet Mohammed (PBUH) had characterized the therapeutic powers of the

black seed as “Hold on to use this black seed, as it has a relief for every illness except death”. Black cumin seed is also quoted for its curative property in the Holy Bible and is also labelled as Malathion by Hippocrates and Dioscorides. Black cumin is a valuable herb with a rich historical and religious background to manage postnatal depression and many other neurological disorders. Active component of black cumin seed retards prostaglandin production around the body by choking the cyclo-oxygenase enzymes (Gilani, 2004). Phenolics and flavonoids in black cumin seed (*Nigella sativa*) encourage excessive sweating thus helps in exudation during fever to cool and encourage the release of toxins. Black cumin seed restrain or boost up immune system activity (Koshak et al., 2018) as desired for ideal balance. Immediate research has shown an effect on the inflammation that go along with asthma flare ups. Black Seed oil contains over 100 therapeutic components which work together collectively. Inculcation of this curative seed in our everyday diet we lead to the addition of a limitless list of factors in our body, which are required for strength and good health.

### CONCLUSION

In a nutshell black cumin seed hold nutraceutical and functional food potential

against various physiological threats owing to its rich Phytochemistry. Number of studies showed that black seed and its essential oils are remarkably used for treatment of various illness including chronic non-infectious and infectious disease. Black cumin seed has received much attention due to several factors such as low cost, ease of access and lower adverse effects profiles as compared to patent medicine. With regular consumption of this super food supplements we can gradually improve the state of our overall well-being.

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