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RESEARCH ARTICLE
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COMPREHENSIVE REVIEW OF NIGELLA SATIVA (SHONIZ): A MULTIFACETED UNANI HERB

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ABSTRACT
Nigella sativa Linn., commonly known as Shoniz, Kalonji, or Black Cumin, is a cornerstone of Unani medicine, celebrated for its wide-ranging therapeutic applications. Known as "Hab al Barakah" (seed of blessing), it has been traditionally valued for treating numerous ailments. This review synthesizes traditional Unani uses with modern scientific evidence, exploring its phytochemistry, pharmacological properties, and clinical efficacy. Key bioactive compounds, particularly thymoquinone, contribute to its therapeutic effects. Clinical studies demonstrate its effectiveness in managing diabetes, dyslipidemia, asthma, chronic rhinosinusitis, and acne, aligning with its traditional applications. However, limitations such as small sample sizes and lack of standardized protocols highlight the need for further research. This paper underscores N. sativa's potential as a universal healer, advocating for its integration into evidence-based medicine through rigorous clinical trials.

Keywords: Kalonji; Black seed; Black Cumin; Shoniz; Unani Medicine.

INTRODUCTION
Nigella sativa Linn. (Ranunculaceae), commonly known as Shoniz, Kalonji, or Black Cumin, is a revered herb in Unani medicine, valued for its diverse therapeutic properties [1]. Referred to as "Hab al Barakah" in Tibb-e-Nabwi, it is historically cited for curing "every disease except death" [2]. It is described as a carminative, diuretic, and galactagogue [3-6]. This review aims to integrate traditional Unani applications, including its Mizaj and compound formulations, with modern pharmacological and clinical evidence, highlighting its phytochemistry, therapeutic potential, and research gaps.

METHODOLOGY

A systematic literature search was conducted using PubMed, Scopus, Web of Science, and Google Scholar, with keywords including "Nigella sativa," "Shoniz," "thymoquinone," "Unani medicine," "pharmacological properties," and "clinical trials." Inclusion criteria encompassed peer-reviewed articles, clinical studies, and classical Unani texts (e.g., Makhzanul Mufradat, Bustanul Mufradat etc.). Non-English articles and non-peer-reviewed sources were excluded. Data were synthesized to compare traditional Unani claims with scientific findings, incorporating clinical trials summarized in a table to highlight key outcomes.

LITERATURE REVIEW

Botanical Description: Nigella sativa is an annual herb, 30–60 cm tall, with 2–3 pinnatisect leaves (2.5–5 cm long) and linear lanceolate segments [7]. It bears pale blue, solitary flowers (2–2.5 cm across) on long peduncles, with ovate, acute, and clawed sepals [8]. The plant has eight nectarial plates with saccate glands and seven carpels, each with an enlarged wart uniting at the top [3]. Seeds are triangular, black, bitter, slightly aromatic, 2–3 mm long, and 1 mm wide, with a rough papillose seed coat, dull white kernel containing oil, and a small embryo within an oily endosperm [9]. Therapeutically, flowers and seeds are used [2].

Global Linguistic Diversity of Nigella sativa Names: N. sativa is known by various names across languages, reflecting its cultural significance, as shown in the table below [7,10,11]:

Language	Vernacular Names
Arabic	Habbatul Sauda, Kamun Aswad, Shoniz
Bengali	Mangrela, Kala Zeera
English	Small Funnel, Black Cumin
Hindi	Kala Zeera, Kalonji, Mangrela
Persian	Shoniz, Siyah Dana
Sanskrit	Krishna Jiraka, Susavi, Sthula Jiraka, Upakuncika, Karvi
Turkish	Qarachurak Audi
Unani	Kamaaazaruus, Sheenon, Sino

Geographical Distribution: N. sativa is cultivated globally in Egypt, Europe, India, Iran, Iraq, North Africa, Pakistan, and Turkey [8]. In India, it is harvested in Punjab, Himachal Pradesh, Assam, Bihar, Bengal, and Jammu & Kashmir [3].

Historical Use in Unani Medicine: Documented in Unani texts like Khazainul Advia and Makhzanul Mufradat, N. sativa is used for respiratory, digestive, and inflammatory disorders [3,10]. Its significance in Tibb-e-Nabwi underscores its cultural and religious importance, with traditional uses in Indian and Arabian cultures for medicinal and culinary purposes, such as seasoning curries [2,11].

Mizaj (Temperament): N. sativa's Mizaj is debated: some classify it as hot and dry in the second degree, others in the third degree [10,12]. This temperament underpins its therapeutic actions [7].

Medicinal Properties: N. sativa is recognized for its actions: Dafe Humma (antipyretic), Mudire Bol (diuretic), Mudire Haiz (emmenagogue), Mudire Laban (galactagogue), Mukhrije Deedan (vermifuge), Mukhrije Janeen (abortifacient), Munaffise Balgham (expectorant), Muhallile Auram, Muhallile Riyah (carminative), Mulayyin (laxative), Munzije Mawad, Muqawwi Meda (stomachic), Musakkine Alam (analgesic), Mufatteh Sudad, Mufattite Hisat (lithotriptic), and Qatile Kirme Shikam (anthelmintic) [5,8,11].

Therapeutic Uses

- **Internal Uses**: Treats Balghami Amraz (phlegmatic diseases), chest pain, stomach-ache, amenorrhea, respiratory distress, ascites, intestinal worms, facial paralysis, epilepsy, stroke, hemorrhoids, phlegmatic headache, phlegmatic cough, joint pain, jaundice, asthma, and Zoafe Meda (gastric weakness) [7,9].
- **Topical Uses**: Effective for headache, hemorrhoids, toothaches, jaundice, and skin ailments like acne and vitiligo [9,13].
- **Compound Formulations**: Includes Majoone Kalkalanaj, Majoone Fanjnosh, Majoone Kundur, and Majoone Fotnaji [9].
- **Contraindications (Muzir)**: Daurane Sar (Giddiness), Khunaaq (diphtheria), and potential harm to kidneys and lungs [8,10].
- **Correctives (Musleh)**: Sard wa Tar Ashya (edibles of cold and moist temperament), Kateera, Sirka, and Tabasheer (Bambusa arundinacea) [12].
- **Substitutes**: Anisoon (Pimpinella anisum), Shibbat (Anethum graveolens), and Tukhme Rashad (Lepidium sativum) [7,9].
- **Dosage**: 1–2 g to 3–5 g, depending on formulation [10,12].

Phytochemistry: N. sativa seeds contain fixed oils (36–38%), essential oils (0.4–2.5%), proteins, alkaloids, and saponins [1]. Organic compounds include albumin, Arabic acid, melanthin, metarbin, mucilage, organic acid, resin, saponin, steroid, sugar, tannin, toxic glucosides, and volatile oil [7]. Inorganic compounds include aluminium, magnesium, calcium, copper, iron, phosphorus, and zinc [8]. Key phytochemicals include thymoquinone (TQ), terpineol, arachidonic acid, arginine, carvone, dithymoquinone, linoleic acid, linolenic acid, methionine, monoterpenes, myristic acid, nigellidine, nigellicine, nigellimine, nigellone, oleic acid, palmitic acid, palmitoleic acid, pyridoxine, riboflavin, stearic acid, thiamin, and thymol [6,9].

Clinical Studies: Clinical trials validate N. sativa's efficacy, as summarized in Table 1.

Table 01. Researches on Nigella sativa

S. No	Title	Type	Disease/Condition	Findings
1	"Evaluating Clinical Efficacy and Safety of A Unani Formulation in the Management of Nazla-i-Muzmin, (Chronic Rhinosinusitis)" [14]	RCT	Chronic Rhinosinusitis	Safe and significantly reduced nasal congestion, discharge, and headache.
2	"Therapeutic evaluation of Kalonji (Nigella sativa) in dyslipidemia, A randomized control trial" [15]	RCT	Dyslipidemia	Reduced cholesterol, LDL, and triglycerides effectively.
3	"Efficacy of Saboos-E-Asapghol (Plantago Ovata) and Kalonji (Nigella Sativa) in The Management of Hypertriglyceridemia" [16]	Clinical study	Hyperlipidemia	Lowered triglycerides significantly.
4	"Effectiveness, Safety, and Tolerability of Powdered Nigella sativa (Kalonji) Seed in Capsules on Serum Lipid Levels, Blood Sugar, Blood Pressure, and Body Weight in Adults: Results of a Randomized, Double-Blind Controlled Trial" [17]	Double-Blind RCT	Serum Lipid Levels, Blood Sugar, Blood Pressure, Body Weight	Reduced lipids, sugar, BP, and weight.

5	"Bronchodilator, spasmolytic and calcium antagonist activities of Nigella sativa seeds (Kalonji) a traditional herbal product with multiple medicinal uses" [18]	Cell line study	Bronchodilator, Spasmolytic, Calcium Antagonist Activities	Bronchodilator and spasmolytic effects.
6	"Single-blind, randomized, control trial of a unani compound formulation in iltehab tajaweefe anaf Muzmin" [19]	Single-Blind, RCT	Chronic Rhinosinusitis	Significant symptom improvement.
7	"In-Vitro Anti-Proliferative, Apoptotic and Antioxidative Activities of Medicinal Herb Kalonji (Nigella sativa)" [20]	In-Vitro/Cell line experiment	Anti-Proliferative, Apoptotic, Antioxidative Activities	Anticancer and antioxidant effects.
9	"An evaluation of the efficacy of ethanolic extract of Nigella sativa L. (Kalonji) on the clinical parameters of moderate-to-severe gingivitis, A split-mouth clinical study" [13]	Non-controlled Clinical Trial	Gingivitis	Reduced gingival inflammation and bleeding.
10	"Comparison of antidyslipidemic potential of 80 milligrams of fenofibrate with 8 grams of nigella sativa seeds daily" [21]	Single-blind RCT	Antidyslipidemic Potential	Comparable lipid-lowering to fenofibrate.
11	"Effect of nigella sativa (kalonji) on serum cholesterol of albino rats" [22]	Animal trial	Serum Cholesterol	Reduced serum cholesterol in rats.
12	"Free Radical Scavenging and Cyto-protective Activity of Ethanolic Extract of Nigella Sativa Seeds" [23]	Lab experiment	Free Radical Scavenging, Cytoprotective Activity	Strong antioxidant and cytoprotective effects.
13	"Evaluation of anti-parkinson's activity of nigella sativa (kalonji) seeds in chlorpromazine-induced experimental animal model" [24]	Animal trial	Anti-Parkinson's Activity	Improved motor function in Parkinson's model.
14	"Effects of Nigella sativa (Kalonji) and Honey on Lipid Profile of Hyper lipidemic Smokers" [25]	Non-controlled Clinical Trial	Hyperlipidemia in Smokers	Improved lipids in hyperlipidemic smokers.
15	"Antimicrobial activity of Black Cumin seeds (Nigella sativa) against multidrug resistant strains of Coagulase negative Staphylococci" [26]	Lab experiment	Antimicrobial Activity	Active against resistant Staphylococcus strains.
16	"Single blind placebo-controlled study on hypolipidemic potential of drugs" [27]	Single-blind RCT	Hypolipidemic Potential	Significantly reduced lipids vs. placebo.
17	"Efficacy and Safety of a Polyherbal Unani drug as an Adjuvant Therapy in type-2 diabetes mellitus, a double blind, Randomized, Placebo Controlled Study" [28]	Double-blind RCT	Type-2 Diabetes Mellitus	Improved glycemic control and insulin sensitivity.

18	"A clinical study on ziabetus shakri qism doem (diabetes mellitus type 2) and its management with Unani formulation, a randomized standard controlled study" [29]	RCT	Type-2 Diabetes Mellitus	Reduced HbA1c and fasting glucose.
19	"Effect of Kalonji (N. Sativa) Seeds on Glycemic Control of Patients with Type-2 Diabetes" [30]	RCT	Type-2 Diabetes	Improved glycemic control.
20	"Study of Nigella sativa oil in the management of wheeze associated lower respiratory tract illness in children" [31]	Non-controlled Clinical Trial	Wheeze-associated Lower Respiratory Tract Illness in Children	Reduced wheezing and improved breathing.
21	"Efficacy of local application of an Unani formulation in acne vulgaris" [32]	Clinical trial	Acne Vulgaris	Reduced acne lesions and inflammation.

DISCUSSION

Nigella sativa holds a prominent place in Unani medicine, traditionally valued for its ability to address a wide range of ailments, from respiratory and digestive disorders to inflammatory and dermatological conditions. Modern scientific studies, as summarized in Table 1, provide substantial evidence supporting these traditional claims. For instance, clinical trials demonstrate that N. sativa and its formulations significantly alleviate symptoms in chronic rhinosinusitis, such as nasal congestion, discharge, and facial pain, aligning with its Unani use for respiratory conditions. In metabolic disorders, studies show N. sativa effectively reduces cholesterol, triglycerides, and blood glucose levels, often comparable to standard treatments like fenofibrate, supporting its traditional use for Ziabetus Shakri and dyslipidemia. Dermatological studies confirm its efficacy in reducing acne lesions and post-inflammatory hyperpigmentation, reinforcing its topical applications in Unani practice. Furthermore, its bronchodilator effects in asthma, antimicrobial activity against multidrug-resistant bacteria, and potential in reducing motor deficits in Parkinson's models highlight its versatility across diverse conditions. These findings, spanning randomized controlled trials, clinical studies, and in vitro experiments, underscore N. sativa's broad therapeutic potential.

Despite these promising results, challenges persist in translating N. sativa into clinical practice. Variability in formulations—such as seeds, oils, or polyherbal compounds—poses difficulties for standardization and reproducibility. The diverse pharmacological actions, primarily driven by thymoquinone, suggest opportunities for developing targeted therapies, but optimal dosages and delivery methods remain underexplored. Future research should prioritize thymoquinone-based drugs and standardized Unani formulations to bridge traditional and modern medicine. Additionally, large-scale clinical trials with consistent protocols are essential to validate long-term safety and efficacy across diverse populations.

CONCLUSION

In conclusion, N. sativa is a versatile herbal drug with a rich legacy in Unani medicine and robust scientific validation. Its bioactive compounds support its use in managing chronic diseases, as evidenced by clinical studies. Continued research, particularly large-scale trials, will be crucial to fully realize its potential as a universal healer in evidence-based medicine.

LIMITATIONS

- Small sample sizes in many clinical trials reduce statistical power.
- Variability in N. sativa formulations (e.g., seeds, oils, extracts) and dosages hinders reproducibility.

- Short trial durations limit insights into long-term safety and efficacy.
- Few studies elucidate the molecular mechanisms of N. sativa's effects.

FUTURE PERSPECTIVE

- Develop standardized N. sativa formulations and dosages for clinical trials to ensure consistency.
- Conduct multi-center, large-scale randomized controlled trials to enhance statistical power and generalizability.
- Implement long-term studies to assess chronic use safety and efficacy.
- Invest in mechanistic studies exploring N. sativa's molecular pathways, particularly thymoquinone's role.

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