

Case Report

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Long-Term Use of Black Seed Effectively Treated Multifaceted Medical Problems in a Middle-Aged Lady



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Abstract

Black seed (BS), or *Nigella sativa* seed, has been used as a natural remedy against many ailments for centuries in ancient remedial systems, such as Arabic, Ayurvedic, Chinese and Unani medicine. BS is reported to contain many active principals, e.g., Thymoquinone, Thymol, Carvacrol, Nigelline, Nigellone and α -hederin, etc; and shown to possess a large number of pharmacological properties, to include anti-hypertensive, anti-diabetic, lipid-lowering, anti-asthmatic, analgesic, anti-inflammatory, anti-oxidant and anti-cancer, etc. In many clinical studies performed to determine therapeutic benefits, grounded BS was dispensed as capsules or tablets. Main active components of BS are volatile oils, which can evaporate during preparation of capsules or tablets, and be responsible for variable responses in treating hypertension, diabetes, knee arthritis and neuropsychiatric disorders in some studies.

Recently, we have reported the beneficial interaction of addition of BS mixed with honey (Equal by weight) one teaspoon twice daily with Allopathic medicines in the treatment of hypertension, diabetes, knee osteoarthritis and anxiety in a middle-aged lady for 2 weeks, which were not being properly managed with standard medication alone. Her BP and blood sugar levels reduced to normal range, osteoarthritis score significantly dropped and anxiety level fell from moderate to none.

The patient continued BS-honey mix along with allopathic medications for more than a year (June 2024-August 2025). Within in 2 months, the intervention permitted the reduction of allopathic medication and/or their dosage. Since then, she is being well maintained with atenolol (50mg) for blood pressure (BP) and metformin (500mg) for diabetes, once daily. Whereas, before BS-honey mix intervention, she was taking three drugs for high BP and high doses of metformin for diabetes. She does not need a pain killer for knee pain. During this long-term phase, the mean of 14 random follow-up readings showed: Systolic BP 128.9 ± 4.0 mmHg, diastolic BP 82.1 ± 2.6 mmHg, random blood sugar 143.7 ± 14.8 mg/dL. Moreover, recent osteoarthritis score was 25% of baseline and she had no anxiety. More recently, a continuous 10 days data in the 13th month after intervention has demonstrated: Mean systolic BP 129 ± 13.7 mmHg, diastolic BP 87 ± 10.6 mmHg and fasting blood sugar 114.8 ± 16.7 mg/dL.

Pronounced efficacy of BS, besides its inherent therapeutic potential, is perhaps linked to immediate mixing of its powder with honey, which avoids evaporation of active components. Honey also improves taste and compliance. Moreover, it is reported to possess antihypertensive and antidiabetic effects. The intervention was well tolerated and recent blood, urine and liver function tests within normal range.

To conclude, long-term (over a year) supplementation of oral BS-honey mix adequately provided blood pressure and glycemic control, relieved knee pain and anxiety, and permitted reduction in allopathic medication &/or their dosage, without any significant side effects. Further studies are needed on larger sample to confirm our observations.

Keywords: Black Seed; Honey; Allopathic Medicines; Long-Term Benefits; Hypertension; Diabetes; knee Osteoarthritis; Anxiety

Abbreviations: BS: Black Seed; STZ: Streptozotocin; TQ: Thymoquinone; SD: Standard Deviation; BAI: Beck-Anxiety-Inventory; EOAQ: Early Osteoarthritis Questionnaire

Introduction

Since ancient times, herbs possessing medicinal properties have been used therapeutically for many ailments. Currently also,

interest in naturally occurring remedies is increasing because they are generally safe, economical and available in edible form [1]. *Nigella sativa* seed is a well-known herb and is commonly

called as 'Black Seed' (BS) in English, 'Hababah Al-Sauda' in Arabic, 'Kara Çörek otu (or simply Çörek otu) in Turkish, 'Sia Daneh' in Persian and 'Kalonji' in Urdu and Hindi. [2].

BS belongs to Ranunculaceae family, has been demonstrated to have a large number of pharmacological properties in addition to use as a spice. BS has a wide history of use in many cultures, religions and primeval medicinal systems, such as Arab, Chinese, Ayurveda, and Unani. It is commonly grown in the Middle East, Middle Asia, Eastern Europe, North Africa and the Indian subcontinent [1,3].

Therapeutic benefits of BS and its oil have been extensively narrated in Al-Tibb Al-Nabawi, The Medicine of the Prophet (Peace and blessings be upon him), composed by Imam Shams al-Dīn Abū-Abd-Allāh, commonly known as Imam Ibn Qayyim al-Jawziyyah (1292-1350 AD), as well as in As-Suyuti's Medicine of the Prophet (Peace and blessings be upon him) by Imam Jalal-al-Din Abdul-Rehamn As-Suyuti (1445-1505 AD). In these classical books, BS has been recommended for treatment of common cold, sneezing, fever, toothache, headache, facial paralysis, flatulence, dyspepsia, intestinal worms, hemorrhoids, dropsy, dyspnea and asthma. Moreover, it is said to alleviate renal stones, improve menstrual flow, enhance milk production in lactating mothers, heal skin ulcers and wounds, treat hard and soft tumors (Including 'Sartan', or cancer), as well as insect, snake and rabid-dog bites. Furthermore, smoke produce by burning BS can repel or kill insects [4,5]. Similar applications have been mentioned in Abu Ali Sina's (Avicenna's) famous book of medicine, 'Qanoon Fi Al-Tib' [6].

Using modern scientific techniques, a wide range of Pharmacological activities of BS have been discovered, to include antioxidant, anti-inflammatory, immunomodulatory, antimicrobial, anticancer, neuroprotective, cardioprotective, hepatoprotective antihypertensive and antidiabetic, etc. which confirm the medicinal applications of this blessed herb mentioned in the folk medicine. The therapeutic potential of BS is attributed to numerous active compounds it contains, such as *thymoquinone*, *thymohydroquinone*, *thymol*, *carvacrol*, *nigellidine*, *nigellicine*, and *α-hederin*, etc. [3].

Earlier, we have reported that the supplementation of BS honey-mix (Equal by weight) efficiently treated hypertension, diabetes, knee osteoarthritis and anxiety in a middle-aged lady within 2 weeks, not being adequately controlled with allopathic medicines alone. She has been taking Losartan (100mg), Amlodipine (10mg), Atenolol (50mg), Metformin (1500mg) daily for about 4 months. She had to stop Mefenamic acid because of stomach upset. After 2 weeks of intervention, her systolic blood pressure reduced from 195 ± 27 to 130 ± 10.8 mmHg, diastolic BP from 105 ± 9 to 85 ± 10.7 mmHg, and random blood sugar from 354.3 ± 106.9 to 122.1 ± 22.9 mg/dL There was 50% reduction in osteoarthritis symptom score and anxiety levels declined from moderate to none [7].

The present case-report was aimed to elaborate the effects of BS on blood pressure, blood sugar levels, knee pain and anxiety for long-term use, i.e., more than a year. Hopefully, the study would contribute towards improved patient care and adequate management of the chronic illnesses.

Case Presentation

General background:

The case highlights therapeutic outcomes observed in a middle-aged woman who received BS-honey mix alongside standard allopathic medicine for her uncontrolled hypertension, diabetes, knee osteoarthritis and anxiety.

Study design

A single-case study has been conducted to assess the benefits of BS-honey mix supplementation with allopathic medication in control of hypertension, diabetes, knee osteoarthritis and anxiety.

Participant

Mrs. F, 55 years of age, presented to the department of medicine at Holy Family Hospital, a teaching hospital attached to Rawalpindi Medical University. She had a history of moderate to high blood pressure, type 2 diabetes mellitus and knee pain. She has been taking Losartan (100mg), Amlodipine (10mg), Atenolol (50mg), and Metformin (1500mg) daily for the last 4 months. She had to stop Mefenamic acid due to stomach upset. Because of poor control of hypertension, diabetes and knee pain she was anxious and worried.

Intervention and data collection

The intervention comprised of one teaspoon (around 5-6gm) of grounded BS immediately mixed with equal amount of honey twice daily, providing a dose of 5-6 grams of BS daily, in addition to Allopathic medication.

In the initial phase of the study (Short-term intervention for 2 weeks), the systolic and diastolic blood pressure and random blood sugar levels were recorded for 2 weeks prior to and 2 weeks after the intervention on prescribed forms. The severity of knee arthritis was assessed, using a standard knee osteoarthritis score, Early Osteoarthritis Questionnaire (EOAQ) [8], before and 2 weeks after intervention. Similarly, anxiety was estimated by Beck-Anxiety-Inventory (BAI), which is a formative assessment and rating scale of anxiety [9]. The intervention included one teaspoon (around 5-6gm) of grounded BS, immediately mixed with equal amount of honey, twice daily in addition to allopathic medication she had been using: Losartan (100mg), Amlodipine (10mg), Atenolol (50mg), and Metformin (1500mg) daily for the last 4 months. She had to stop Mefenamic acid due to stomach upset.

In the next phase of the study (Long-term intervention for a year), 14 follow-up readings were recorded randomly for systolic and diastolic BP and random blood sugar level. Moreover, by

the end of the year, knee osteoarthritis score was determined by EOAQ and anxiety level by BAI. Data was recorded using pre-structured clinical monitoring forms and standardized symptom questionnaires and analyzed using IBM-SPSS Statistics version 26. Mean and standard deviation (SD) was calculated from the physiological readings and results of pre- & post-intervention compared statistically.

Results

During the initial 14-day period, daily monitoring of blood pressure and blood sugar was conducted. Pre-intervention baseline means were as follows: systolic blood pressure 195 ± 27 mmHg, diastolic blood pressure 105 ± 9 mmHg, and random blood sugar 354.3 ± 106.9 mg/dL. After 14 days of intervention, marked improvements were observed: systolic blood pressure decreased to 130 ± 10.8 mmHg, diastolic pressure to 85 ± 10.7 mmHg, and random blood sugar to 122.1 ± 22.9 mg/dL ($p < 0.001$ for all comparisons). Osteoarthritis symptom score showed a 50% improvement, and anxiety levels declined from moderate to none.

Following this response, the intervention was continued for over a year (June 2024-August 2025), which comprised of Atenolol (50mg) once daily for blood pressure and Metformin 500

mg once daily for diabetes. No additional medications were taken for knee pain or anxiety. From January to June 2025, 14 follow-up random readings were obtained. The mean post-intervention values during this long-term phase were: systolic blood pressure 128.93 ± 4.0 mmHg, diastolic blood pressure 82.14 ± 2.6 mmHg, and random blood sugar 143.71 ± 14.8 mg/dL. Osteoarthritis score was 25% of baseline and no signs of anxiety were reported in this phase. Based on disease-specific questionnaires for hypertension and diabetes, the only reported symptom was mild, infrequent headache; no other symptoms were documented.

A recent evaluation included a continuous 10-day recording of blood pressure and blood glucose levels in August 2025. The mean systolic BP was 129 ± 13.7 mmHg, diastolic BP 87 ± 10.6 mmHg, and fasting blood sugar 114.8 ± 16.7 mg/dl. Patient did not report any adverse effects, except occasional headache. Routine laboratory investigations, including complete blood count, urinalysis and liver function tests, were all within normal limits.

The mean trends for systolic and diastolic blood pressure are presented in Figure 1, blood sugar in Figure 2, and osteoarthritis symptom scores as percentage improvement from baseline in Figure 3.

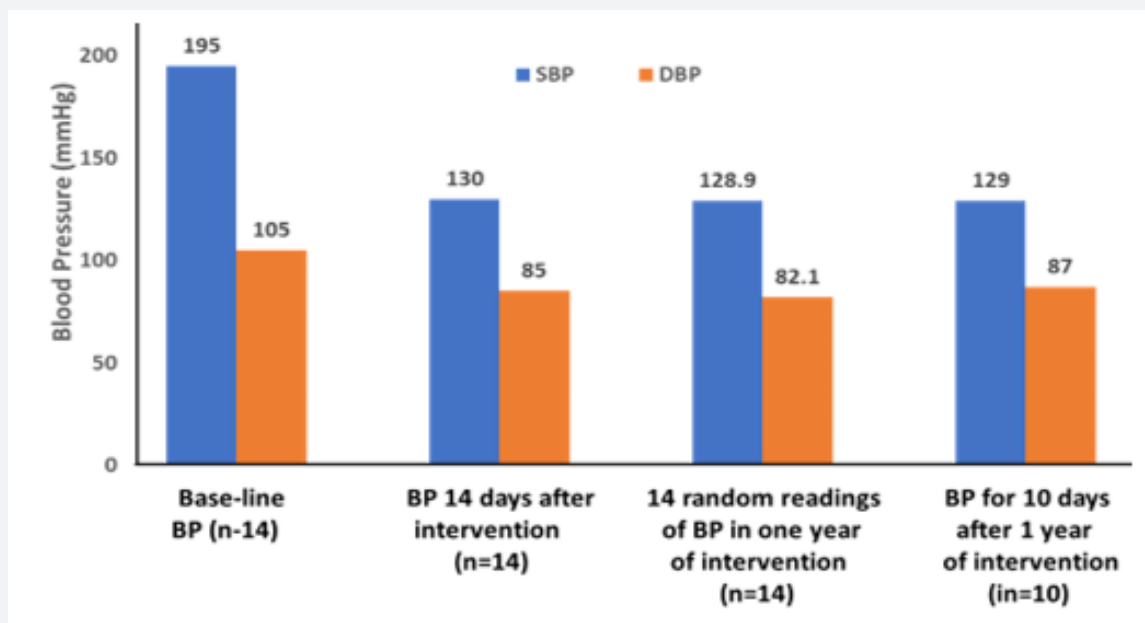


Figure 1: Mean systolic BP (SBP) and diastolic BP, base-line and at different stages of intervention.

Discussion

The present study is a long-term follow-up of a short-term (14-day) trial of BS and honey mixture on a middle-aged lady suffering from hypertension, diabetes, type-2, knee osteoarthritis and anxiety [7]. The study reports the effects of BS after long-term use, more than a year, in the same patient. The patient's multifaceted pathologies remained well controlled by BS-honey-mix supplementation with reduced Allopathic medication, i.e. Atenolol

(50mg) and Metformin (500mg) once daily. From January to June 2025, results of 14 random follow-up readings revealed: systolic blood pressure 128.93 ± 4.0 mmHg, diastolic blood pressure 82.14 ± 2.6 mmHg, random blood sugar 143.71 ± 14.8 mg/dL, osteoarthritis score 25% of baseline and no signs of anxiety. Based on disease-specific questionnaires for hypertension and diabetes, the only reported symptom was mild, infrequent headache; no other symptoms were documented.

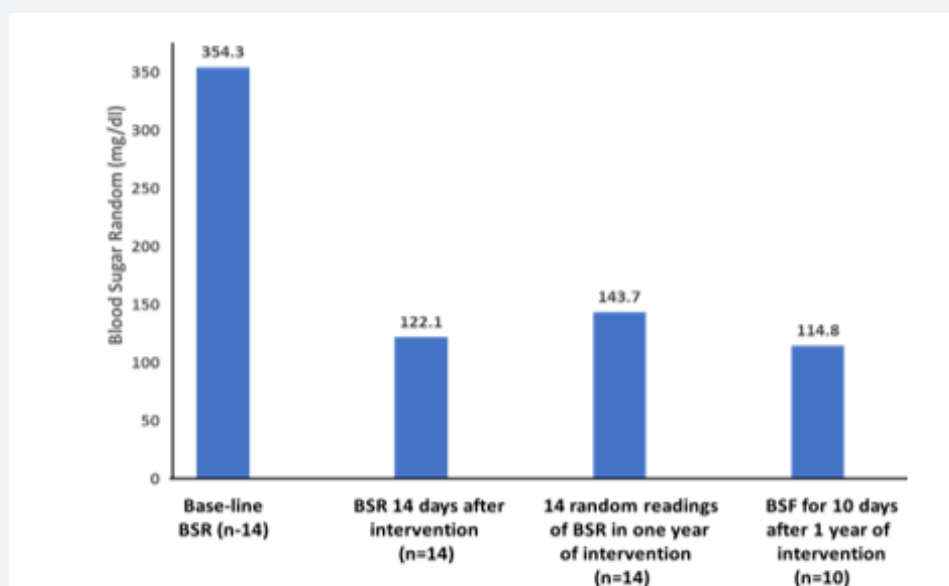


Figure 2: Mean blood sugar [Random (BSR) and fasting (BSF)] at base-line and different intervention phases.

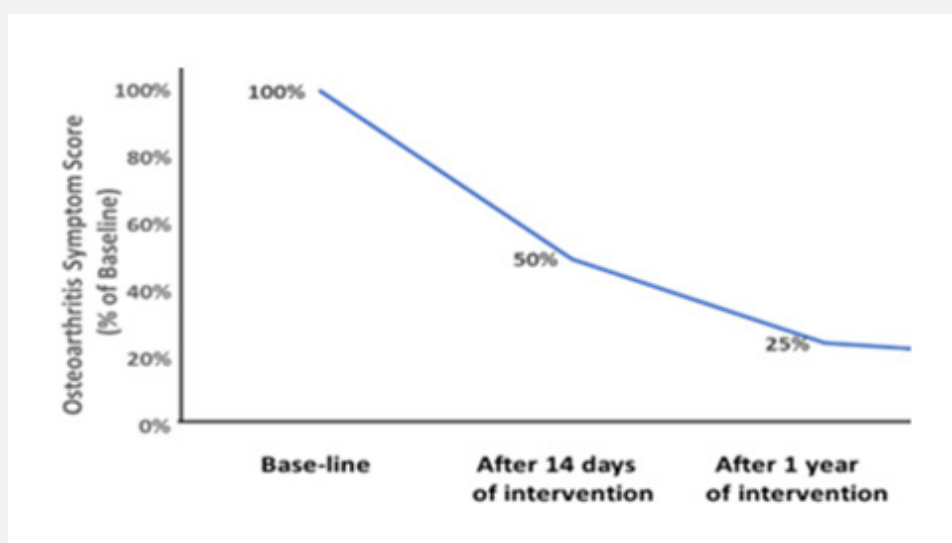


Figure 3: Osteoarthritis symptom scores: pre-intervention (base-line, taken as 100%), after 14 days of intervention, (Initial short-term phase), and after one year of intervention (Long-term phase).

These findings are in consistent with a study on hypertensive patients, which showed significant reduction in systolic blood pressure in the control group after the administration of BS-oil as compared with the group that was given placebo [10]. An animal-based study to find the effects of BS extracts and its active constituent thymoquinone states that angiotensin II induced elevation of mean arterial pressure and systolic blood pressure

were ameliorated as a result of administration of *N. sativa* extracts and thymoquinone in rats [11]. Besides reduction of angiotensin-II activity, other mechanisms have also been mentioned in a review article for control of high blood pressure, such as inhibition of calcium channels and diuretic action [12].

The study results have revealed a sustained glycemic control over a year of intervention with BS along with only Metformin

500mg, maintaining a mean random blood sugar of 142.5 mg/dl and fasting blood sugar 114.8mg/dL. Similar effects of BS and its major active component, *thymoquinone* (TQ), have been reported in the literature. Recently a systemic review of many clinical studies revealed that *N. sativa* and TQ were found to be highly potent in terms of their *hypoglycaemic* activity when compared to placebo, with significant improvements observed in several key metabolic markers, such as fasting blood glucose, postprandial blood glucose, *glycosylated hemoglobin* (HbA1c), insulin resistance, and pancreatic β -cell function. Notably, when TQ was administered with Metformin, it resulted in a more pronounced reduction in HbA1c and blood glucose levels than Metformin alone, suggesting a synergistic effect between two agents [13].

The administration of BS extract in streptozotocin (STZ)-induced diabetes rats, showed significant improvement in the weight of pancreatic tissue and markedly suppressed the expression of key genes associated with pancreatic dysfunction and damage, including caspase-3, transforming growth factor-beta 1 (TGF- β 1), and interleukin-1 beta (IL-1 β). BS extract also effectively regulated *hyperglycaemia* as judged through oral glucose tolerance test. These findings suggest that BS offers a safe, long-term solution for the management of *hyperglycaemia* [14]. *N. sativa* and TQ were shown to protect diabetes-related endothelial dysfunction by reducing inflammation, improving glycemic and lipid profiles, enhancing antioxidant activity, and regulating key endothelial genes such as eNOS, VCAM-1, and LOX-1. TQ also has been reported to suppresses pro-inflammatory cytokines like IL-1 β , TNF- α , and NF- κ B, contributing to its anti-inflammatory effects [15].

Moreover, a review on its miraculous effects states *N. sativa* has shown promising results in improving blood sugar control in both diabetic and glucose-intolerant individuals. Its effects are believed to stem from enhancing insulin release in response to glucose and limiting its absorption in the gut. The direct effect of TQ on imidazoline receptors (I-Rs) was identified in CHO-K1 cells overexpressing imidazoline receptors (I-Rs), which enhances GLP-1 secretion by intestinal NCI-H716 cells and controls hyperglycemia. Diabetes mellitus has close link with oxidative stress, which makes use of BS more appropriate in the treatment of diabetes, because of its potent anti-oxidant properties. These findings suggest *N. sativa* could be a useful supportive therapy in type 2 diabetes [16].

Regarding knee osteoarthritis, patient had to discontinue Mefenamic acid due to stomach upset. However, after initial 14-days intervention the osteoarthritis score reduced to 50% of the baseline. With continued use of the intervention over the year the score further reduced to 25%, without additional medication for her knee pain. These results are in line with a similar study that states that taking *N. sativa* oil by mouth and its topical application on knee for six weeks caused a significant reduction in knee pain

and serum levels of CRP and MDA and increase in TAC. Moreover, significant improvements were observed in the general, physical, and mental health; which boosted the patient's quality of life [17].

With adequate control of BP, blood sugar level and knee pain; and the potential anti-anxiety effects of BS, the anxiety level came down to nil, as assessed by Beck Anxiety Inventory. Earlier, oral BS oil has been shown to possess anxiolytic activity in rats using open field and elevated plus maze models, possibly linked to a significant increase in the brain levels of 5-HT and brain and plasma levels of tryptophan [18]. A clinical study on young healthy volunteers, involving use of BS as a nutritional supplement for 4 weeks, concluded that BS stabilized mood, decreased anxiety and had a positive effect on cognition [19].

The potential of black seed to maintain therapeutic benefits over time promises its role as a complementary therapy, particularly in circumstances where issues are drug adverse effects, cost, or polypharmacy. Home-based preparation of BS and honey provides good palatability, cost-effectiveness, improved patient compliance and easy dose adjustment. As compared to capsule preparations, where most clinical trials used 1- 2gm dosage, our home-made formulation one teaspoonful (5-6gm of BS & honey) twice daily, allows the intake of 5-6gm of BS daily, improving efficacy without compromising the safety. Moreover, it is anticipated that in the process of capsule or tablet formation from the grounded BS, a significant amount of active volatile oil components would evaporate, more or less, leading to decrease in its effectiveness and controversial results reported in the literature.

Our study, being a single patient report, might not confirm the findings to larger populations; hence, future implications include research on larger populations to strengthen our observations and further assessing the long-term safety and mechanism of action of black seed.

Conclusion

Black seed supplementation in the regimen of patients with chronic conditions like hypertension, diabetes, and knee osteoarthritis, etc., has demonstrated promising results. Improved blood pressure and glycemic control have been noted with marked reduction in dosing of conventional medicines. Better formulation and dosage of BS with honey led to improved patient compliance and outcomes.

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