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The King of Spices Revisited: Multidisciplinary Perspectives on *Piper nigrum* (Filfil Siyah)

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Abstract

Background: Black pepper (*Piper nigrum* L.), known as the "King of Spices" is a globally significant spice with origins in southern India. Beyond its culinary uses, it has been traditionally employed in Unani Medicine, Ayurveda, and Modern medicine for its therapeutic properties.

Objective: This review aims to consolidate current knowledge on the taxonomy, phytochemistry, pharmacological activities, and therapeutic applications of black pepper, emphasizing its bioactive compound, piperine.

Methods: A comprehensive analysis of existing literature was conducted, including traditional texts, pharmacological studies, and clinical research, to evaluate the medicinal potential of black pepper.

Results: Black pepper exhibits diverse pharmacological effects, including antimicrobial, anti-inflammatory, antioxidant, hepatoprotective, and immunomodulatory properties. Piperine enhances nutrient absorption, supports digestion, and demonstrates anti-cancer, anti-diabetic, and neuroprotective potential. Additionally, it aids in managing obesity, hypertension, and microbial infections. However, caution is advised in renal disorders and for individuals with a hot temperament.

Conclusion: Black pepper is a valuable natural remedy with extensive health benefits, validated by both traditional and modern research. Further clinical studies are needed to optimize its therapeutic applications and establish evidence-based guidelines.

Keywords: *Piper nigrum*, black pepper, piperine, traditional medicine, Unani Medicine.

Introduction

Black pepper (*Piper nigrum* L.), known as the "King of Spices", is a highly popular seasoning worldwide and is native to southern India ^[1]. Its name is derived from the Sanskrit word "*Pipali*". Major producers of black pepper are India, Malaysia, Indonesia, China, Thailand, Sri Lanka, Vietnam, Brazil, and Madagascar ^[2]. Beyond its culinary uses as a vital spice, black pepper also has potential applications in traditional medicine, perfumery, as a preservative, and as an insecticide ^[3]. Whole peppercorns of *Piper nigrum* or their active compounds are utilized in various kinds of foods and as medicinal agents ^[4].

Black pepper is a tropical climbing vine that typically grows between 4 and 9 meters in height, relying on other trees for support. Its leaves are simple, entire, and elliptical in shape, measuring about 10-15 cm long and 5-9 cm wide. They are thick, somewhat leathery, and smooth (hairless). The plant produces a drupe known as a peppercorn, which can reach up to 8 mm in diameter. Its flowers are bisexual, white in colour, and typically arranged in hanging clusters containing 20 to 30 blooms. The dried unripe fruit of the pepper plant is used medicinally. These fruits are spherical, about 8 mm in diameter, brown in colour, with a wrinkled, mesh-like surface. They have a spicy flavour and a distinctive aroma ^[5].

Piper nigrum has been traditionally used for its medicinal benefits in numerous cultures around the world since ancient times. The active compound piperine has been shown to improve the effectiveness of various drugs, vaccines, and nutrients by enhancing their absorption in the body, primarily through the inhibition of metabolizing enzymes. Piperine is also known to boost cognitive performance and support fertility. Additionally, it stimulates enzymes in the pancreas and intestines, promoting better digestion. The spice's numerous health benefits are largely credited to piperine, along with other bioactive compounds. The fruits of *Piper nigrum* are processed to make both white and green pepper, and the plant is widely used as a culinary spice ^[5].

Taxonomical Classification

Kingdom- Plantae
 Class- Equisetopsida
 Subclass- Magnoliidae
 Order- Piperales
 Family- Piperaceae
 Genus- Piper
 Species- nigrum ^[5]

Vernacular Names

Arabic: Filfil Aswad
Bengali: Golmorich, Kalaorich, Morich
English: Black Pepper
French: Poivre
German: Schwartzpeffer
Gujarati: Kalimor
Hindi: Kalamirch
Kannada: Menaru, Karimonaru
Marathi: Kalamiri
Persian: FilfilSiyah
Punjabi: Galmirich, Kalimirch
Sanskrit: Maricham, Maricha, Hapusha, Ooshnam, Valliyam
Tamil: Milagu
Telugu: Miriyalu, Marichamu
Urdu: Filfil Siyah, Kalimirch ^[6]



Fig 1: Black Pepper (*Piper nigrum* L.)

Hissae Mustamela (Parts Used)

Dried unripe fruit ^[8]

Mizaj (Temperament) ^[7, 9, 10]

Hot 2⁰ and Dry 2⁰

Afa'al (Actions)**Externally**

- Jali (Detergent),
- Musakkin-i-Alam (Analgesic),
- Jazib-e-Khoon (Absorbent)
- Muhallil-i-Auram (Resolvent),
- Mukharrish-i-Jild (Irritant)

Internally

- Muquawwi-e-Jigar (Hepatic tonic),
- Muharrik (Stimulant),
- Kasir-e-Riyah (Carminative),
- Mudirr-i-Bawl (Diuretics),
- Mudirr-i-Hayd (Emmenagogue),

- Muquawwi-e-Bah (Aphrodisiac),
- Munaffis-e-Balgham (Expectorant),
- Tiryag-i-Sumoom (Antidote),
- Tiryag-e-meda (Stomach Antidote),
- Mushtahi (Appetizer),
- Daf-i-Bukhar (Antipyretic),
- Muqawwi-i-A'sab (Nervine tonic),
- Muqawwi-i-Mi'da (Stomachic),
- Muhallil (Resolvent) ^[7, 11]

Istematlat (Uses)

Nafkh-e-Shikam, Fasad-e-Hazam, Zof-e-Hazam, Kasrat-e-Riyah, Bars-o-bahak ^[7]

Mawaqe Istemaal (Therapeutic Uses)

Pepper generally acts as a warming agent and aids in digestion, urination, and cleansing the body. It is used to treat various eye issues, such as darkening of the pupils. It can help relieve recurring chills or fevers when either consumed as a drink or applied to the skin. Pepper is also useful in treating bites from venomous animals. When used as a pessary, it serves as a contraceptive and can also induce abortion, preventing pregnancy after intercourse.

In syrup or liquid form, pepper is effective for respiratory and chest problems, including chronic cough. It is effective in treating tonsillitis when used topically with honey. When chewed with adenoid passage as lozenges, it helps clear mucus from the head. Pepper boosts appetite, promotes wound healing, and eases pain when included in sauces. When taken with pitch, it can help dissolve scrofulous tumors (swollen glands), and combined with saltpetre, it may be used to treat vitiliginos (a type of leprosy). Applied topically, it also promotes spleen health.

Pharmacological Activities

- Antimicrobial,
- Anti-obesity,
- Carminative,
- Anti-inflammatory,
- Hepatoprotective,
- Anti-oxidant,
- Anti-mutagenic,
- Anti-tumor,
- Anti diarrheal,
- Anti-Hypertensive,
- Antiplatelet,
- Antipyretic,
- Antispasmodic,
- Antifungal,
- Anti-Apoptotic,
- Anti-Spermatogenic,
- Anti-Colon Toxin,
- Anti-Asthmatic,
- Anti-Anxiety,
- Antithyroid,
- Insecticidal, and
- Larvicidal Activities ^[15-19]

Miqdar-e- khurak (Dosage)

1-2 gm ^[7]

4 -9 Masha (4-9 gm)

3 Ratti-1 Masha (375gm-1gm)

0.25-1 gm ^[9, 10]

Badal (Substitute)

- Zanjabeel (Ginger)
- Dar-i-filfil (Long pepper)
- 1 ½ part Filfil safed ^[10]

Musleh (Correctives)

- A'sl (Purified honey)
- Sirka (Vinegar)
- Cold Ravghaniyat (Oils)
- Ruboob of acrid fruits
- Ice
- Cold water ^[10]

Contraindications

It is contraindicated in Renal disorders and individuals with a hot temperament. ^[10, 11]

Adulterants

- The fruits of water knot weed *Polygonum amphibium L.*
- Seeds of *Schinus molle L.* (Brazil / California pepper)
- Seeds of *Carica papaya L.* (Papaya) ^[20]

Phytochemistry

Dried black pepper is packed with powerful natural compounds, with Piperine being the most prominent.

Piperine is largely responsible for pepper's distinctive heat and many of its health benefits. Alongside piperine, black pepper also contains several other active compounds like piperic acid, piperanine, piperettine, piperylin A, piperolein B, pipericine, piperlonguminine, pellitorine, piperamide, and (-)- kusunokinin.

Beyond its bioactive chemicals, black pepper is nutritionally rich. It provides essential minerals such as calcium, magnesium, potassium, phosphorus, sodium, iron, and zinc. It's also a source of important vitamins, including Vitamin C and B-complex vitamins (B₁, B₂, and B₃), as well as basic nutrients like carbohydrates, proteins, and fats.

In addition, black pepper contains beneficial plant compounds like tannins, flavonoids (such as catechin, quercetin, and myricetin), and carotenoids (including lutein and beta-carotene), all known for their antioxidant and health-boosting properties.

The essential oils extracted from black pepper add another layer of complexity, with β-caryophyllene being the most abundant, followed by compounds like limonene, sabinene, α- and β-pinene, and many others. These contribute to its aroma, flavor, and therapeutic qualities. Even the leaves of the pepper plant are rich in bioactive elements especially nerolidol, along with α-pinene and β-caryophyllene showing that nearly every part of the plant holds medicinal and nutritional value ^[21]

Table 1: Nutritional composition of (*Piper nigrum L*) ^{22, 23,24}

Water	5.40-6.86 (g)
Carbohydrate	31 (g)
Fat	4.3(g)
Sodium	61.6 (mg)
Protein	9.3(g)
Calcium	117.5 (mg)
Magnesium	196.8 (mg)
Potassium	111.6 (mg)
Phosphorus	1.6 (mg)
Iron	8.5 (mg)
Zinc	1.4 (mg)
Vitamin C	27.46-32.53(mg)
Vitamin B1	0.74-0.91(mg)
Vitamin B2	0.48-0.61 (mg)
Vitamin B3	0.63-0.78 (mg)
Tannin	2.11-2.80(mg)
Flavonoids Catechin	410.0(μg)
Myricetin	56.0(μg)
Quercetin	13.0 (μg)
Carotenoids Lutein	260.0 (μg)
β-carotene	150.0 (μg)

Compound Formulations

Various compound formulations are prepared in Unani System using Filfil siyah for treatment of a number of ailments.

Ḥabb -e-Azaraqī, Ḥabb -e-Surfa, Ḥabb-e-Gul-e-Aakh, Ḥabb-e-Papita, Ḥabb -e-Tinkar, Ḥabb-e-Shahiqa, Ḥabb-e-Kabid Naushadri, Qurṣ -e-Dawa-ul-Shifa, Qurṣ-e-Malti Basant, Ravghan-e-Seer, Ravghan-e-Qust, Barsha'shā', Jawārish Jalinoos, Jawārish Zarooni Sada, Jawārish Kamooni, Jawārish Bisbasa, Ma'jūn Jalali, Ma'jūn Seer Alvi Khan, Ma'jūn Falasafa, Itrīfal Kabir, Anqaroya Kabir, Anqaroya Saghir, Bāsaliqūn Kabir, Tiryāq Samaniya, Jawārish Safarjali Qabiz, Jawārish Falafili, Jawārish

Kamooni Mushil, Ḥabb-e-Tinkar, Ḥabb-e-Halteet, Ḥabb-e-Rahat, Ḥabb-e-Musakkin Nawaz, Ḥabb-e-Musaffi Khoon, Ḥabb-e-Summ-ul-Faar, Safūf -e-Bars, Safūf -e-Chutki, Safūf -e-Namak Sulaimani, Kuḥl -al-Jawahar, Kuḥl -e-Bayaz, Kuḥl-e-Kafoor, Ma'jūn Jograj Gogul, Ma'jūn -e-RegMahi, Ma'jūn -e-Zanjabeel, Ma'jūn -e-Fanjnoosh, Ma'jūn-e-Qulanj, Ma'jūn -e-Kalkulanj, Ma'jūn -e-Nisyan, Ma'jūn -e-Halila, Mufarreh Kabir, Ikseer-e-Gurda, Tiryāq -e-Meda ^[9]

Pharmacological Activities

Antimicrobial activity of Black pepper

A recent study synthesised silver nanoparticles using extracts from the leaves and stems of *Piper nigrum* (black

pepper) and tested their antibacterial properties against plant pathogens.²⁵ The nanoparticles demonstrated significant antibacterial effectiveness. The researchers concluded that these silver nanoparticles hold valuable potential for enhancing crop protection and development within the field of agricultural nanotechnology.^[26]

Anti-obesity Activity

Obesity is increasingly recognized as a global issue, partly due to the social stigma associated with it. *Piper nigrum* is commonly used in herbal medicine as part of non-pharmacological approaches to managing obesity, alongside lifestyle practices such as exercise, yoga, meditation, and dietary regulation.^[27]

Carminative Activity

Pepper possesses strong stimulant and carminative effects, which trigger a reflexive increase in saliva production, enhance the secretion of gastric juices, and help boost appetite. It also promotes gastrointestinal motility, leading to the release of gas and relief from abdominal discomfort. When taken in larger amounts, pepper can dilate the skin's surface blood vessels, creating a sensation of warmth, followed by sweating and a slight drop in body temperature.^[28] Due to these qualities, it is widely used as a spice, particularly in warmer climates. Black pepper is also utilized in treating haemorrhoids. An oleoresin of pepper is made by extracting it with acetone and isolating piperine.^[29]

Cholesterol Lowering and Immune Enhancer Activity

Black pepper and its active compound piperine help lower cholesterol absorption and support the translocation of cholesterol transporter proteins.^[30] They aid digestion by accelerating the breakdown of large fat molecules into simpler, more digestible forms, thereby preventing fat accumulation in the body. Additionally, black pepper has an immunomodulatory effect on the human body.^[31] When piperine is supplemented with a high-fat diet (at a dose of 40 mg/kg), it significantly reduces body weight, total cholesterol, triglycerides, LDL, VLDL, and overall fat mass, while simultaneously increasing HDL levels without causing other changes. Regular consumption of black pepper or piperine also lowers the risk of atherosclerosis due to its lipid-lowering and anti-atherogenic properties.^[32]

Anti-mutagenic, Antitumor and Anticancer Activity

Piper nigrum L (black pepper) has demonstrated promising immunomodulatory and antitumor effects. Since angiogenesis is crucial for tumor growth and cancer progression, studies have shown that piperine can inhibit the proliferation and G1/S phase transition of human umbilical vein endothelial cells, suggesting its potential in cancer treatment.^[2]

Antioxidant activity

Black pepper is a valuable natural source of antioxidants. These compounds play a crucial role in shielding cells from damage caused by free radicals—unstable molecules that are generated during food digestion or through exposure to tobacco smoke and radiation.^[33] Antioxidants are essential for preserving the proper functioning of organs such as the liver, kidneys, and digestive system. They also contribute to the prevention of cardiovascular diseases and cancer. Additionally, antioxidants positively affect lipid metabolism

and exhibit antidiabetic properties.^[34]

Digestive activity of black pepper

Consuming *Piper nigrum* in the diet supports digestion by stimulating pancreatic enzyme activity and significantly reducing the transit time of food through the gastrointestinal tract. It also promotes increased saliva and gastric secretion, as well as enhances the production and activation of salivary amylase.^[35] When taken orally, piperine or *Piper nigrum* encourages the liver to secrete bile acids, which are essential for the digestion and absorption of dietary fats.^[24]

Anti-pyretic activity

In traditional Indian medicine systems such as Ayurveda, Unani, Siddha, and various folk medicines, pepper and its formulations have been used to treat conditions like intermittent fever, neuritis, colds, throat ailments, and pain. It has also been traditionally employed as an anti-periodic remedy for malaria, indicating its analgesic and antipyretic properties.²⁴ Research has confirmed that piperine, a key compound in pepper, exhibits significant antipyretic and analgesic effects.^[2]

Anti diarrhoeal Effect

Diarrhea remains a major cause of illness and death worldwide, particularly among children in developing nations. Administration of aqueous black pepper extract at doses of 75, 150, and 300 mg/kg has demonstrated significant, dose-dependent effects in reducing intestinal motility and secretion, thereby exhibiting antidiarrheal properties. These effects are primarily attributed to the alkaloid compounds present in black pepper.^[36]

Immunomodulatory activity of black pepper

The immunomodulatory and antitumor properties of *Piper nigrum* have been studied, revealing that both black pepper and cardamom play important roles in regulating immune responses and exhibiting antitumor effects. As natural agents, they help support and maintain a healthy immune system. Piperine, a key component of black pepper, contributes to immunomodulation by enhancing cytokine production, activating macrophages, and promoting lymphocyte proliferation.^[29, 37]

Other pharmacological activities

Piper nigrum (black pepper) and its active compound, piperine, possess various pharmacological properties. These include

- Antihypertensive,
- Antiplatelet,
- Antipyretic,
- Antispasmodic,
- Antifungal,
- Anti-Apoptotic,
- Anti-Metastatic,
- Antimutagenic,
- Anti-Spermatogenic,
- Anti-Colon Toxin,
- Anti-Asthmatic,
- Anti-Anxiety,
- Antithyroid,
- Insecticidal, And
- Larvicidal Activities^[17, 18, 19]

Results and Conclusion

The review of existing literature reveals that black pepper (*Piper nigrum* L.) and its active constituent piperine exhibit a wide spectrum of pharmacological activities supported by both traditional use and scientific evidence. Phytochemical analysis identifies piperine as the primary bioactive alkaloid along with essential oils, flavonoids, and minerals that contribute to its antioxidant, anti-inflammatory, and antimicrobial properties. Traditional medicinal systems have employed black pepper for digestive, respiratory, and metabolic disorders, while modern research confirms its hepatoprotective, neuroprotective, immunomodulatory, and anticancer effects through various mechanisms including enzyme modulation and free radical scavenging.

The spice demonstrates significant antimicrobial activity against pathogens, anti-obesity potential through lipid metabolism regulation, and gastrointestinal benefits via stimulation of digestive enzymes. Additionally, its analgesic, antipyretic, and anti-diarrheal properties validate several traditional uses. However, contraindications exist for renal disorders and specific metabolic conditions, and adulteration remains a quality concern. While current evidence strongly supports the therapeutic value of black pepper, further clinical studies are needed to establish standardized dosages, evaluate long-term safety, and explore potential drug interactions, particularly concerning piperine's bioavailability-enhancing effects. The cumulative data positions black pepper as a promising herb for integrative medicine applications, bridging traditional knowledge with evidence-based therapeutic approaches.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

- Nair KP. *Agronomy and economy of black pepper and cardamom: The King and Queen of Spices*. Amsterdam: Elsevier Press; 2011. p. 380.
- Damanhour Z, Ahmad A. A review on therapeutic potential of *Piper nigrum* L. (black pepper): the king of spices. *Med Aromat Plants*. 2014;3:161. doi:<https://doi.org/10.4172/2167-0412.1000161>.
- Raja BP, Sethuraman MG. Inhibitive effect of black pepper extract on the sulphuric acid corrosion of mild steel. *Mater Lett*. 2008;62:2977-2979.
- Ahmad N, Fazal H, Abbasi BH, Farooq S, Ali M. Biological role of *Piper nigrum* L. (black pepper): a review. *Asian Pac J Trop Biomed*. 2012;S1945-S1953.
- Saleem A, Naureen I, Naeem M, Tasleem G, Ahmed H, Farooq U. Therapeutic role of *Piper nigrum* L. (black pepper) and pharmacological activities. *Scholars Int J Biochem*. 2022;5(1):15-21.
- Piper nigrum* L. World Flora Online Consortium. <http://www.worldfloraonline.org/organisation/WFO>.
- Anonymous. *The Unani Pharmacopoeia of India*. Part 1, Vol. 4. New Delhi: Government of India, Ministry of Health & Family Welfare, Dept. of Ayush; 2007. p. 14, 30, 38-40.
- Nadkarni KM. *Indian Materia Medica*. Vol. 1. Mumbai: Popular Prakashan Private Limited; 2010. p. 965, 969-972.
- Kabeeruddin M. *Makhzenul Mufradat*. Delhi: Idara Kitab-us-Shifa; 2007. p. 58-63, 66-67, 145-146, 178-179, 382-384, 539.
- Ghani N. *Khazaen-ul-Advia*. Vol. 1-4. Delhi: Idara Kitab-us-Shifa; p. 203-205, 495-496, 1027-1028, 1231-1233.
- Tariq HNA. *Tajul Mufradat*. Delhi: Idara Kitab-us-Shifa; 2004. p. 544-546, 676.
- Osbaldeston TA, Wood RPA. *Dioscorides De Materia Medica* (English translation). Johannesburg: Ibis Press; 2000. p. 316-318.
- Sina I. *Al-Qanoon-Fit-Tibb* (Urdu translation). Delhi: Idara Kitab-us-Shifa; 2007. Vol. 2. p. 108, 426.
- Hakeem MA. *Bustan-ul-Mufradat*. Lucknow: Idara Taraqqi Urdu Publications, Siddiqui Book Depot; YNM. p. 59, 121, 142, 153, 160, 185, 209, 299.
- Khare C. *Indian Medicinal Plants*. Heidelberg: Springer Science & Business Media; 2007.
- Ansari KA, Akram M. *Filfil Siyah (Piper nigrum* Linn), an important drug of Unani system of medicine: a review. *J Pharmacogn Phytochem*. 2014;2:219-221.
- Manoharan S, Balakrishnan S, Menon V, Alias L, Reena A. Chemopreventive efficacy of curcumin and piperine during 7,12-dimethylbenz[a]anthracene-induced hamster buccal pouch carcinogenesis. *Singapore Med J*. 2009;50:139-146.
- Parganiha R, Verma S, Chandrakar S, Pal S, Sawarkar HA, Kashyap P. *In vitro* anti-asthmatic activity of fruit extract of *Piper*. *Int J Herbal Drug Res*. 2011;1:15-18.
- Kunnumakkara AB, Bordoloi D, Padmavathi G, Monisha J, Roy NK, Prasad S, et al. *Piper nigrum* and piperine: a review on potential therapeutic effects. *Br J Pharmacol*. 2017;174(11):1325-1348.
- Anonymous. *Quality standards of Indian medicinal plants*. Vol. 8. New Delhi: Indian Council of Medical Research; 2010. p. 262.
- Ara SA, Akhlaq S, Haque M, Fazil M, Akram U, Ahmad B, et al. Ethnobotany, pharmacological application, phytochemistry and therapeutic potential of black pepper (*Piper nigrum* L.): an updated review. *Indian J Unani Med*. 2023;16(1):35-46.
- Ashokkumar K, Pandian A, Murugan M, Dhanya MK, Sathyan T, Sivakumar P, et al. Profiling bioactive flavonoids and carotenoids in select South Indian spices and nuts. *Nat Prod Res*. 2020;34(9):1306-1310.
- Nwofia GE, Kelechukwu C, Nwofia BK. Nutritional composition of some *Piper nigrum* (L.) accessions from Nigeria. *Int J Med Arom Plants*. 2013;3:247-254.
- Srinivasan K. Black pepper and its pungent principle piperine: a review of diverse physiological effects. *Crit Rev Food Sci Nutr*. 2007;47:735-748. doi:10.1080/10408390601062054.
- Rani SKS, Saxena N, Udaysree. Antimicrobial activity of black pepper (*Piper nigrum* L.). *Glob J Pharmacol*. 2013;7:87-90.
- Morsy NFS, Abd El-Salam EA. Antimicrobial and antiproliferative activities of black pepper (*Piper*

- nigrum* L.) essential oil and oleoresin. J Essent Oil Bear Plants. 2017;20:779-790.
27. Vijayakumar RS, Surya D, Senthilkumar R, Nalini N. Hypolipidemic effect of black pepper (*Piper nigrum* Linn.) in rats fed high-fat diet. J Clin Biochem Nutr. 2002;32:31-42.
 28. Rani SKS, Saxena N, Udaysree. Antimicrobial activity of black pepper (*Piper nigrum* L.). Glob J Pharmacol. 2013;7:87-90.
 29. Taqvi SI, Shah AJ, Gilani AH. Blood pressure lowering and vasomodulator effects of piperine. J Cardiovasc Pharmacol. 2008;52:452-458.
 30. Duangjai A, Ingkaninan K, Praputbut S, Limpeanchob N. Black pepper and piperine reduce cholesterol uptake and enhance translocation of cholesterol transporter proteins. J Nat Med. 2013;67(2):303-310.
 31. Meghwal M, Goswami TK. *Piper nigrum* and piperine: an update. Phytother Res. 2013;27(8):1121-1130.
 32. Yang Y, Kanev D, Nedeva R, Jozwik A, Rollinger JM, Grzybek W, *et al.* Black pepper dietary supplementation increases high-density lipoprotein (HDL) levels in pigs. Curr Res Biotechnol. 2019;1:28-33.
 33. Hlavačková L, Janegová A, Uličná O, Janega P, Černá A, Babál P. Spice up the hypertension diet: curcumin and piperine prevent remodeling of aorta in experimental L-NAME-induced hypertension. Nutr Metab. 2011;8(1):1-10.
 34. Meghwal M, Goswami TK. Chemical composition, nutritional, medicinal and functional properties of black pepper: a review. Sci Rep. 2012;1(2):172-173. doi:<http://dx.doi.org/10.4172/scientificreports.172>.
 35. Hussain A, Naz S, Nazir H, Shinwari ZK. Tissue culture of black pepper (*Piper nigrum* L.) in Pakistan. Pak J Bot. 2011;43:1069-1078.
 36. Shamkuwar PB, Shahi SR, Jadhav ST. Evaluation of antidiarrheal effect of black pepper (*Piper nigrum* L.). Asian J Plant Sci Res. 2012;2:48-53.
 37. Acharya SG, Momin AH, Gajjar AV. Review of piperine as a bioenhancer. Am J Pharm Tech Res. 2012;2:32-44.

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