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Review Article

Scope to which Pre-eminence of Black Pepper in Diet and its Health Benefits

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ABSTRACT

Black pepper grows in India and other tropical Asian countries. Black pepper is one of the most commonly used spices in the world. Black pepper and white pepper both emanate from the same plant species, but they are yare differently. Black pepper is made by cooking the dried unripe fruit. White pepper is made by cooking and drying the ripe seeds.

People take black pepper by mouth for arthritis, asthma, upset stomach, and many other conditions, but there is no good scientific evidence to fortify these utilizations.

People inhale ebony pepper oil to avert falls, to avail quite smoking and abbreviate appetencies, and for many other conditions, but there is no good scientific evidence to fortify these utilizations. In foods, black pepper and black pepper oil are used as a spice.

Keywords: Black pepper, Homoeopathy, white pepper

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INTRODUCTION

Black pepper contains a chemical called piperine. This chemical seems to have many effects in the body. It seems to kill bacteria, fungi, and parasites. Piperine might also help with absorption of some medications and protect against cancer.

Uses & Effectiveness?

Insufficient Evidence for

Athletic performance. Early research in men who are not trained athletes' shows that taking a supplement containing black pepper and other ingredients afore exercise does not ameliorate performance.

Fall aversion. Early research shows that applying ebony pepper oil near the right side of the nasal discerner in order to inhale the scent ameliorates stability in older people when their ocular perceivers are closed. This amelioration is akin to applying and inhaling lavender oil.

Fatigue Early research shows that taking black pepper does not improve attention or mental energy in adults with low energy levels.

Insect bites. Early research shows that applying a specific product containing black pepper and other ingredients directly to mosquito bites does not reduce the size, redness, or itchiness of the bites.

Quitting smoking Early research in men who smoke shows that puffing on a vapor device containing black pepper oil over 3 hours may reduce cigarette cravings and anxiety. Also, early research in adults who are addicted to chewing, dipping, or smoking tobacco shows that inhaling a drop of black pepper oil on a tissue might reduce cravings.

Trouble swallowing. Some children with

different medical conditions, including encephalon disorders, are victualed through a tube (enteral pabulum) because they are not able to victual victuals consistently. Early research in these children shows that applying black pepper oil to the nostrils or nasal cavity for one minute afore repasts can amend swallowing and the magnitude of victuals they can orally consume. Other early research in older adults who have had a appetencies stroke and are living in a long-term care nursing home, shows that applying ebony pepper oil near the nostrils for one minute afore repasts can ameliorate swallowing. A skin disorder that causes white patches to develop on the skin (vitiligo).

• A bacterial infection that causes diarrhea (cholera).
• Arthritis.
• Asthma.
• Bronchitis.
• Cancer.
• Colic.
• Depression.
• Diarrhea.
• Dizziness.
• Discolored skin (vitiligo).
• Dizziness.
• Gas.
• Headache.
• Itchy skin caused by mites (scabies).
• Measles.
• Menstrual pain.
• Nerve pain.
• Pain.
• Sex drive.
• Stuffy nose.
• Sinus infection.
• Upset stomach.
• Weight loss.
• Other conditions.

More evidence is needed to rate black pepper for these uses.

Black pepper is one of the most commonly used spices worldwide.

It’s made by grinding peppercorns, which are dried berries from the vine Piper nigrum, Homoeopathic medicine

It has a sharp and mildly spicy flavor that goes well with many dishes.

But black pepper is more than just a kitchen staple. It has been deemed the “king of spices” and used in ancient Ayurvedic & Homoeopathic medicine for thousands of years due to its high concentration of potent, beneficial plant compounds.

Homoeopathic Medicine

Piper Nigrum

Pepper. N. O. Piperaceae. Trituration or tincture of dried fruits (peppercorns).

Clinical.-Anus, fissure of. Blenorrhagia. Breasts, swelling of; eruption on. Constipation. Cough. Dysuria. Haemorrhoids. Headache. Menses, irregular; scanty. Milk, excessive flow of. Neuralgia. Priapism. Speech, difficult. Teeth, caries of. Tongue, eruption on; heavy. Toothache. Uterus, cramps in.

Characteristics.-The Peppers are tropical climbing shrubs. Piper nig. yields the pepper of commerce. The fruit when ripe is red. It is gathered before it is fully ripe and spread on mats in the sun, when it loses its red colour and becomes black and shriveled. This is Black pepper. White pepper is the same fruit freed from its outer skin by maceration in water and subsequent rubbing (Treas. of Bot.). The symptoms of the proving are Houat's. The only additional symptom is one recorded by Berridge as having occurred in a lady on two occasions from taking a large quantity of pepper: "Feeling as if temples and molar bones were pressed in, < on left side." This confirms one of Houat's symptoms. The full, heavy headache of Houat's provings I can confirm by personal experience: I get the headache whenever I take food highly peppered; and I know others who do the same. Sensations of burning occur almost everywhere. Pressure is almost as common: Pressure in nasal bones, in temples and facial bones. Contraction of uterus and sensation as if something about to enter it. Sensation of a foreign round body rising to stomach. The symptoms are < by change of temperature; in damp weather; in evening; by motion.

Here are 11 science-backed health benefits of black pepper

1. High in antioxidants

Free radicals are unstable molecules that can damage your cells. Some free radicals are

created naturally-such as when you exercise and digest food.

However, excessive free radicals can be formed with exposure to things like pollution, cigarette smoke, and sun rays.

Excess free radical damage may lead to major health problems. For example, it has been linked to inflammation, premature aging, heart disease, and certain cancers.

Black pepper is rich in a plant compound called piperine, which test-tube studies have found to have potent antioxidant properties.

Studies suggest that a diet high in antioxidants may help prevent or delay the damaging effects of free radicals.

Test-tube and rodent studies have observed that ground black pepper and piperine supplements may reduce free radical damage.

For instance, rats fed a high-fat diet plus either black pepper or a concentrated black pepper extract had significantly fewer markers of free radical damage in their cells after 10 weeks compared to rats fed a high-fat diet alone.

Black pepper is affluent in a potent antioxidant called piperine, which may avail avert free radical damage to your cells.

2. Has anti-inflammatory properties

Chronic inflammation may be an underlying factor in many conditions, such as arthritis, heart disease, diabetes, and cancer.

Many laboratory studies suggest that piperine — the main active compound in black pepper — may effectively fight inflammation.

For example, in studies in rats with arthritis, treatment with piperine resulted in less joint swelling and fewer blood markers of inflammation.

In mouse studies, piperine suppressed inflammation in the airways caused by asthma and seasonal allergies

However, the anti-inflammatory effects of black pepper and piperine have not yet been studied extensively in people.

Black pepper contains an active compound that has been shown to decrement inflammation in animals. Still, it's obscure whether it has the same effects in humans.

3. May benefit your brain

Piperine has been shown to improve brain function in animal studies.

In particular, it has demonstrated potential benefits for symptoms related to degenerative brain conditions like Alzheimer's and Parkinson's disease.

For example, a study in rats with Alzheimer's disease found that piperine improved memory, as the distribution of piperine enabled the rats to repeatedly run a maze more efficiently than rats not given the compound.

In another rodent study, piperine extract seemed to decrease the formation of amyloidal plaques, which are dense clumps of damaging protein fragments in the brain that have been linked to Alzheimer's disease.

Yet, studies in humans are needed to confirm whether these effects are also seen outside animal studies.

Black pepper extract has ameliorated symptoms of degenerative encephalon diseases in animal studies, but studies in humans are needed to verify these results.

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4. May improve blood sugar control

Studies suggest that piperine may help improve blood sugar metabolism.

In one study, rats fed a black pepper extract had a smaller spike in blood sugar levels after consuming glucose compared to rats in the control group.

Additionally, 86 overweight people taking a supplement containing piperine and other compounds for 8 weeks experienced significant improvements in insulin sensitivity — a measure of how well the hormone insulin removes glucose from the bloodstream.

However, it's unclear whether the same effects would occur with black pepper alone, as a combination of many active plant compounds was used in this study.

Black pepper extract may ameliorate blood sugar control, but more research is needed.

5. May lower cholesterol levels

High blood cholesterol is associated with an increased risk of heart disease, which is the leading cause of death worldwide.

Black pepper extract has been studied in animals for its potential to reduce cholesterol levels.

In one 42-day study, rats fed a high-fat diet and a black pepper extract had decreased blood cholesterol levels, including LDL (bad) cholesterol. The same effects were not seen in the control group.

Additionally, black pepper and piperine are believed to boost the absorption of dietary supplements that have potential cholesterol-lowering effects like turmeric and red yeast rice.

For example, studies have shown that black pepper may increase the absorption of the active component of turmeric — curcumin — by up to 2,000%.

Still, more studies are needed to determine whether black pepper itself has significant cholesterol-lowering effects in humans.

Black pepper has demonstrated cholesterol-lowering effects in rodent studies and is believed to boost the absorption of potential cholesterol-lowering supplements.

6. May have cancer-fighting properties

Researchers hypothesize that the active compound in black pepper, piperine, may have cancer-fighting properties.

Though no human trials have been performed, test-tube studies found that piperine slowed the replication of breast, prostate, and colon cancer cells and induced cancer cell death.

Another test-tube study screened 55 compounds from spices and observed that piperine from black pepper was the most effective at enhancing the efficacy of traditional treatment for triple-negative breast cancer, the most aggressive cancer type.

What's more, piperine has shown promising effects in laboratory studies for reversing multidrug resistance in cancer cells — an issue that interferes with the efficacy of chemotherapy treatment.

Though these results are promising, more studies are needed to understand the potential cancer-fighting properties of black pepper and piperine.

Black pepper contains an active compound that has slowed the replication of cancer cells and induced cancer cell death in test-tube studies. However, these effects have not been studied in people.

Other benefits

Black pepper may benefit health in many other ways according to preliminary research:

7. Boosts absorption of nutrients. Black pepper may increase the absorption of essential nutrients like calcium and selenium, as well some beneficial plant compounds, such as those found in green tea and turmeric.

8. May promote gut health. The makeup of your gut bacteria has been linked to immune function, mood, chronic diseases, and more. Preliminary research suggests that black pepper may increase the good bacteria in your gut.

9. May offer pain relief. Though it has yet to be studied in humans, studies in rodents suggest that the piperine in black pepper may be a natural pain reliever.

10. May reduce appetite. In a small study, 16 adults reported reduced appetite after drinking a black-pepper-based beverage compared to flavored water. However, other studies did not show the same effects.

Black pepper increases the absorption of essential nutrients and salutary plant compounds. According to preliminary research, it may additionally promote gut health, offer pain mitigation, and truncate appetite.

11. A versatile spice

Black pepper has become a kitchen staple in households worldwide.

With its subtle heat and bold flavor, it's versatile and can enhance almost any savory dish.

A dash of ground black pepper can be a tasty seasoning for cooked vegetables, pasta dishes, meat, fish, poultry, and many more.

It also pairs well with other healthful seasonings, including turmeric, cardamom, cumin, garlic, and lemon zest.

For an extra kick and a little crunch, try coating tofu, fish, chicken, and other proteins with coarsely ground peppercorns and additional seasonings.

Black pepper has a subtle heat and a bold flavor that makes it a tasty additament to virtually any dish.

The bottom line

Black pepper and its active compound piperine may have potent antioxidant and anti-inflammatory properties.

Laboratory studies suggest that black pepper may improve cholesterol levels, blood sugar control, and brain and gut health.

Despite these promising findings, more studies in humans are needed to better understand the exact health benefits of black pepper and its concentrated extracts.

Regardless, this versatile flavor-enhancer is worth adding to your daily cooking routine, as its bold flavor is a great addition to almost any dish.

Side Effects

When taken by mouth: Black pepper is LIKELY SAFE when taken in amounts commonly found in foods. It is not known if taking black pepper as a medicine is safe. Taking large amounts of black pepper by mouth, which can accidentally get into the lungs, has been reported to cause death.

When applied to the skin: Black pepper oil is POSSIBLY SAFE. If it gets into the eyes, black pepper can burn. Some people might develop an allergy to black pepper.

When inhaled: Black pepper oil is POSSIBLY SAFE when inhaled through the nose or mouth. Black pepper might have a burning aftertaste and it might upset the stomach. Inhaling black pepper oil through the nose or mouth can cause cough. Some people might develop an allergy to black pepper.

Special Precautions and Warnings

Pregnancy: Black pepper is LIKELY SAFE when taken by mouth in amounts commonly found in foods. It is LIKELY UNSAFE when taken by mouth in large amounts during pregnancy. It might cause an abortion.

There isn't enough reliable information available to know if applying black pepper to the skin is safe while pregnant.

Breast-feeding: Black pepper is LIKELY SAFE when taken by mouth in amounts commonly found in foods. There isn't enough reliable information to know if black pepper is safe when used as medicine when breast-feeding. Stay on the safe side and stick to food amounts.

Children: Black pepper is LIKELY SAFE when taken by mouth in amounts commonly found in foods. It is POSSIBLY UNSAFE when taken by mouth in large amounts. Deaths in children have been reported from large amounts of black pepper accidentally entering the lungs. There isn't enough reliable information available to know if applying black pepper oil to the skin is safe for children.

Bleeding conditions: Piperine, a chemical in black pepper, might slow blood clotting. In theory, taking black pepper in amounts greater than those in food might increase the risk of bleeding in people with bleeding disorders.

Diabetes: Black pepper might affect blood sugar levels. In theory, taking black pepper in amounts greater than those in food might affect blood sugar control in people with diabetes. Dosing adjustments for diabetes medications might be needed.

Surgery: Piperine, a chemical in black pepper, might slow blood clotting and affect blood sugar levels. In theory, taking black pepper in amounts treater than those found in food might cause bleeding complications or affect blood sugar levels during surgery. You should stop taking black pepper in amounts greater than those in food at least 2 weeks before surgery.

Interactions?

Moderate Interaction

Be cautious with this combination

Medications changed by the liver (Cytochrome P450 3A4 (CYP3A4) substrates) interacts with BLACK PEPPER AND WHITE PEPPER

Some medications are changed and broken down by the liver.

Black and white pepper might decrease how quickly the liver breaks down some medications. Taking pepper along with some medications that are broken down by the liver can increase the chance of side effects from some medications. Before taking black or white pepper, talk to your healthcare provider if you are taking any medications that are changed by the liver.

Some medications changed by the liver include lovastatin (Mevacor), ketoconazole

(Nizoral), itraconazole (Sporanox), fexofenadine (Allegra), triazolam (Halcion), and many others.

• Medications moved by pumps in cells (P-Glycoprotein Substrates) interacts with BLACK PEPPER AND WHITE PEPPER

Some medications are moved by pumps in cells. Black and white pepper might make these pumps less active and increase how much of some medications get absorbed by the body. This might cause more side effects from some medications.

Some medications that are moved by these pumps include etoposide, paclitaxel, vinblastine, vincristine, vindesine, ketoconazole, itraconazole, amprenavir, indinavir, nelfinavir, saquinavir, cimetidine, ranitidine, diltiazem, verapamil, digoxin, corticosteroids, erythromycin, cisapride (Propulsid), fexofenadine (Allegra), cyclosporine, loperamide (Imodium), quinidine, and others.

• Phenytoin (Dilantin) interacts with BLACK PEPPER AND WHITE PEPPER

Black and white pepper might increase how much phenytoin (Dilantin) the body absorbs. Taking black and white pepper along with phenytoin (Dilantin) might increase the effects and side effects of phenytoin (Dilantin).

• Propranolol (Inderal) interacts with BLACK PEPPER AND WHITE PEPPER

Black and white pepper might increase how much propranolol (Inderal) the body absorbs. Taking black and white pepper along with propranolol (Inderal) might increase the effects and side effects of propranolol (Inderal).

• Rifampin interacts with BLACK PEPPER AND WHITE PEPPER

Black and white pepper might increase how much rifampin the body absorbs. Taking black and white pepper along with rifampin might increase the effects and side effects of rifampin.

• Theophylline interacts with BLACK PEPPER AND WHITE PEPPER

Black pepper and white pepper can increase how much theophylline the body can absorb. This might cause increased effects and side effects of theophylline.

• Lithium interacts with BLACK PEPPER AND WHITE PEPPER

Black pepper and white pepper might have an effect like a water pill or "diuretic." Taking black pepper and white pepper might decrease how well the body gets rid of lithium. This could increase how much lithium is in the body and result in serious side effects. Talk with your healthcare provider before using this product if you are taking lithium. Your lithium dose might need to be changed.

Minor Interaction

Be watchful with this combination

• Carbamazepine (Tegretol) interacts with BLACK PEPPER AND WHITE PEPPER

Black and white pepper might increase the amount of carbamazepine (Tegretol) absorbed by the body. It might also decrease how quickly the body breaks down and gets rid of carbamazepine. This could increase how much carbamazepine is in the body and potentially increase the chance of side effects. However, there is not enough known about this potential interaction to know if it is a big concern.

Dosing

The felicitous dose of ebony pepper and white pepper for utilize as treatment depends on several factors such as the utilizer's age, health, and several other conditions. At this time there is not enough scientific information to determine an opportune range of doses for ebony pepper and white pepper. Keep in mind that natural products are not always compulsorily safe and dosages can be paramount. Be sure to follow germane directions on product labels and consult your pharmacist or medico or other healthcare professional afore utilizing.

REFERENCES

Amer, A. and Mehlhorn, H. Persistency of larvicidal effects of plant oil extracts under different storage conditions. Parasitol.Res. 2006; 99(4):473-477. View abstract.

Bezerra, D. P., Pessoa, C., de Moraes, M. O., Silveira, E. R., Lima, M. A., Elmiro, F. J., and Costa-Lotufo, L. V. Antiproliferative effects of two amides, piperine and piplartine, from Piper species. Z.Naturforsch.C. 2005; 60(7-8):539-543. View abstract.

Cordell B, Buckle J. The effects of aromatherapy on nicotine craving on a U.S. campus: a small comparison study. J Altern Complement Med.

2013 Aug;19(8):709-13. doi: 10.1089/acm.2012.0537. Epub 2013 Mar 28. View abstract.

Duessel, S., Heuertz, R. M., and Ezekiel, U. R. Growth inhibition of human colon cancer cells by plant compounds. Clin Lab Sci. 2008; 21(3):151-157. View abstract.

Electronic Code of Federal Regulations. Title 21. Part 182 -- Substances Generally Recognized As Safe. Available at: https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?CFRPart=182

Freeman, S., Ebihara, S., Ebihara, T., Niu, K., Kohzuki, M., Arai, H., and Butler, J. P. Olfactory stimuli and enhanced postural stability in older adults. Gait. Posture. 2009; 29(4):658-660. View abstract.

Gregersen NT, Belza A, Jensen MG, Ritz C, Bitz C, Hels O, Frandsen E, Mela DJ, Astrup A. Acute effects of mustard, horseradish, black pepper and ginger on energy expenditure, appetite, ad libitum energy intake and energy balance in human subjects. Br J Nutr. 2013 Feb 14; 109(3):556-63. View abstract.

Hamada, T. [Studies on the crude drugs used for the folk medicine described in "mimi-bukuro"]. Yakushigaku.Zasshi 1995; 30(1):46-53. View abstract.

Koul, I. B. and Kapil, A. Evaluation of the liver protective potential of piperine, an active principle of black and long peppers. Planta Med 1993; 59(5):413-417. View abstract.

Lin, J. K. Food-borne amines and amides as potential precursors of endogenous carcinogens. Proc Natl.Sci Counc.Repub.China B 1986; 10(1):20-34. View abstract.

McNamara, F. N., Randall, A., and Gunthorpe, M. J. Effects of piperine, the pungent component of black pepper, at the human vanilloid receptor (TRPV1). Br J Pharmacol 2005; 144(6):781-790. View abstract.

Nalini N, Sabitha K, Viswanathan P, Menon VP. Influence of spices on the bacterial (enzyme) activity in experimental colon cancer. J Ethnopharmacol 1998;62:15-24. View abstract.

O'Mahony, R., Al Khtheeri, H., Weerasekera, D., Fernando, N., Vaira, D., Holton, J., and Basset, C. Bactericidal and anti-adhesive properties of culinary and medicinal plants against Helicobacter pylori. World J Gastroenterol. 12-21-2005; 11(47):7499-7507. View abstract.

Panda, S. and Kar, A. Piperine lowers the serum concentrations of thyroid hormones, glucose and hepatic 5'D activity in adult male mice. Horm.Metab Res. 2003;35(9):523-526. View abstract.

Rose, J. E. and Behm, F. M. Inhalation of vapor from black pepper extract reduces smoking withdrawal symptoms. Drug Alcohol Depend. 1994; 34(3):225-229. View abstract.

Song, Q. F., Qu, Y. C., Zheng, H. B., Zhang, G. H., Lin, H. G., and Yang, J. L. [Differentiation of erythroleukemia K562 cells induced by piperine]. Ai.Zheng. 2008; 27(6):571-574. View abstract.

Taqvi, SI, Shah, AJ, and Gilani, AH. Insight into the possible mechanism of antidiarrheal and antispasmodic activities of piperine. Pharmaceutical Biology (Netherlands) 2009; 47(660):664.

Usia, T., Iwata, H., Hiratsuka, A., Watabe, T., Kadota, S., and Tezuka, Y. CYP3A4 and CYP2D6 inhibitory activities of Indonesian medicinal plants. Phytomedicine. 2006; 13(1-2):67-73. View abstract.

Vasudevan, K., Vembar, S., Veeraraghavan, K., and Haranath, P. S. Influence of intragastric perfusion of aqueous spice extracts on acid secretion in anesthetized albino rats. Indian J.Gastroenterol. 2000; 19(2):53-56. View abstract.

Wrba, H., el Mofty, M. M., Schwaireb, M. H., and Dutter, A. Carcinogenicity testing of some constituents of black pepper (Piper nigrum). Exp.Toxicol.Pathol. 1992; 44(2):61-65. View abstract.

