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Bitter Melon, Bitter Gourd (*Momordica charantia*)

Be aware that the U.S. Food and Drug Administration does not strictly regulate herbs and dietary supplements. There is no guarantee of strength, purity or safety of products containing or claiming to contain bitter melon. Decisions to use herbs or supplements should be carefully considered. Individuals using prescription drugs should discuss taking herbs or supplements with their pharmacist or health care provider before starting.

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Evidence

Scientists have studied bitter melon for the following health problems:

Diabetes
Bitter melon has been observed to have blood sugar-lowering effects, but there is only limited research specifically using bitter melon in humans. Bitter melon juice, fruit and dried powder have been used to moderate hypoglycemic effects in small, poorly designed studies. It is not clear what dose may be safe and effective. Bitter melon should not be use by patients with diabetes unless they are closely supervised by a qualified health care provider.
HIV
Some studies suggest that a component of bitter melon seeds may provide benefits for HIV by preventing the virus from infecting human cells. However, these studies have been conducted only in laboratory settings, and research in humans is lacking. A case report exists of lowered CD4 cell counts associated with bitter melon intake; however, this has not been proven. Therefore, it is unclear whether there is any benefit from bitter melon in people infected with HIV.
Cancer

Early studies suggest that one of the components of bitter melon extract may be effective in slowing the growth or spread of some types of cancer, particularly breast cancer. Cervical cancer patients (stage II or III) have shown some evidence of immune system response to bitter melon while undergoing radiotherapy in one poorly described study. Research in humans is limited, and more proven therapies are recommended at this time. Further study is needed before a recommendation can be made.

Unproven Uses

Bitter melon has been suggested for many other uses, based on tradition or on scientific theories. However, these uses have not been thoroughly studied in humans, and there is limited scientific evidence about safety or effectiveness. Some of these suggested uses are for conditions that are potentially very serious and even life-threatening. You should consult a health care provider before taking bitter melon for any unproven use.

Abortion induction	Eye diseases
Anorexia	Glaucoma
Antifungal	Hemorrhoids
Anthelmintic	Herpes
Antimicrobial	High cholesterol
Antiplasmodial	Immunomodulation
Antioxidant	Infertility
Antitumor	Pain
Antiviral	Psoriasis
Chemopreventive	Respiratory infections
Contraception	Rheumatoid arthritis
Diabetic gastropathy	Sinusitis
Diabetic neuropathy	Stomach cramps

Potential Dangers

Allergies

People should avoid bitter melon if they have a known allergy to bitter melon or any member of the *Cucurbitaceae* (gourd or melon) plant families. This includes Persian melon, honeydew, casaba, muskmelon and cantaloupe. Signs of allergy include rash, itching or shortness of breath.

Side Effects

Seeds and rind may be toxic. Some people may experience headaches. Bitter melon may also decrease blood sugar levels. Caution is advised if you take prescription drugs to control your blood sugar levels. If you have diabetes and are considering using bitter melon, you should discuss this with your health care provider.

People who have been diagnosed with glucose-6-phosphate deficiency (most common in persons of Mediterranean or Middle Eastern descent) may experience adverse effects, such as headache, fever, stomach pain or even coma because of an inability to break down a component of bitter melon seeds. Other reported adverse effects are convulsions in children, reduced fertility (in mice studies), a favism-like syndrome and increases in gamma-glutamyltransferases and alkaline phosphatase blood levels (in animal studies).

Pregnancy And Breast-Feeding

Bitter melon cannot be recommended during pregnancy or breast-feeding because of the risk of birth defects or spontaneous abortion. Bitter melon may affect the ability to get pregnant.

Interactions

Interactions with drugs, supplements and other herbs have not been thoroughly studied. The interactions listed below have been reported in scientific publications. If you are taking prescription drugs, speak with your health care provider or pharmacist before using herbs or dietary supplements.

Interactions With Drugs

Bitter melon may lower blood sugar levels. Caution is advised if you are also taking prescription drugs that may lower blood sugar levels. Patients taking oral drugs for diabetes or using insulin should be monitored closely by their health care provider while using bitter melon. Dosing adjustments may be necessary.

The effects of dexamethasone, indomethacin or chemotherapy drugs may be increased. Based on preliminary data, bitter melon may have immunomodulatory effects and increase activity of drugs that affect the immune system, including antivirals used for HIV/AIDS. Based on animal data, bitter melon may lower triglyceride levels and may have additive effects with cholesterol-lowering drugs.

Bitter melon may also interact with drugs metabolized by or affecting the liver, fertility or antifertility agents, immune system suppressants or medications used to treat parasites (anthelmintics).

Interactions With Herbs And Dietary Supplements

Bitter melon may lower blood sugar levels. People using other herbs or supplements that may alter blood sugar levels, such as ginkgo (*Ginkgo biloba*), should be monitored closely by their health care provider while using bitter melon. Dosing adjustments may be necessary.

Based on preliminary data, bitter melon may have immunomodulatory effects and may increase activity of drugs that affect the immune system, such as echinacea. Based on animal data, bitter melon may lower triglyceride levels and may have additive effects with herbs and supplements such as red yeast and garlic.

Bitter melon may also interact with herbs or supplements metabolized by or affecting the liver, antiviral agents, fertility or antifertility agents, or medications used to treat parasites (anthelmintics). Bitter melon leaf extracts have been observed to reverse chemotherapy drug resistance.

Dosing

The doses listed below are based on scientific research, publications or traditional use. Because most herbs and supplements have not been thoroughly studied or monitored, safety and effectiveness may not be proven. Brands may be made differently, with variable ingredients even within the same brand. Combination products often contain small amounts of each ingredient and may not be effective. Appropriate dosing should be discussed with a health care provider before starting therapy; always read the recommendations on a product's label. The dosing for unproven uses should be approached cautiously, because scientific information is limited in these areas.

There are no standard or well-studied doses of bitter melon, and many different doses are used traditionally.

Adults (Aged 18 Or Older)

Fruit juice: A dose of 50 to 100 milliliters (approximately three to six tablespoons) of bitter melon fruit juice has been used. Juice formulations may be more effective in lowering blood sugar levels than are dried fruit products.

Injection: Bitter melon has been tested as a subcutaneous injection, but safety and effectiveness have not been proven.

Children (Younger Than 18)

There are not enough scientific data to recommend bitter melon for use in children, and bitter melon is not recommended because of potential side effects. There are two reports of blood sugar levels falling too low in children, resulting in coma, after drinking bitter melon tea.

Summary

Bitter melon has been suggested as a treatment for many conditions. There is some research to support the use of bitter melon in lowering blood sugar levels, although it is not clear what dose is safe and effective. Bitter melon should be used cautiously with close monitoring by a health care provider in people with diabetes. Chemotherapy drugs, anti-inflammatories, and agents acting on the immune system may be affected. There is not enough scientific evidence to support the use of bitter melon for any other medical condition. It should be avoided in pregnant or breast-feeding women and in children. Consult your health care provider immediately if you have any side effects.

The information in this monograph was prepared by the professional staff at Natural Standard, based on thorough systematic review of scientific evidence. The material was reviewed by the Faculty of the Harvard Medical School with final editing approved by Natural Standard.

Resources

1. [Natural Standard](#): An organization that produces scientifically based reviews of complementary and alternative medicine (CAM) topics
2. [National Center for Complementary and Alternative Medicine \(NCCAM\)](#): A division of the U.S. Department of Health & Human Services dedicated to research

Selected Scientific Studies: Bitter Melon

Natural Standard reviewed more than 165 articles to prepare the professional monograph from which this version was created.

Some of the more recent studies are listed below:

1. Basch E, Gabardi S, Ulbricht C. Bitter melon (*Momordica charantia*): a review of efficacy and safety. *Am J Health Syst Pharm* 2003;Feb 15, 60(4):356-359. Review.
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3. Grover JK, Rathi SS, Vats V. Amelioration of experimental diabetic neuropathy and gastropathy in rats following oral administration of plant (*Eugenia jambolana*, *Mucuna pruriens* and *Tinospora cordifolia*) extracts. *Indian J Exp Biol* 2002;Mar, 40(3):273-276.
4. Lee-Huang S, Huang PL, Chen HC, et al. Anti-HIV and anti-tumor activities of recombinant MAP30 from bitter melon. *Gene* 1995;161(2):151-156.
5. Leung SO, Yeung HW, Leung KN. The immunosuppressive activities of two abortifacient proteins isolated from the seeds of bitter melon (*Momordica charantia*). *Immunopharmacology* 1987;Jun, 13(3):159-171.
6. Limtrakul P, Khantamat O, Pintha K. Inhibition of P-glycoprotein activity and reversal of cancer multidrug resistance by *Momordica charantia* extract. *Cancer Chemother Pharmacol* 2004;Dec, 54(6):525-530.
7. Raman A, Lau C. Anti-diabetic properties and phytochemistry of *Momordica charantia* L. (*Cucurbitaceae*). *Phytomed* 1996;2(4):349-362.
8. Rebutan SP. Bitter melon therapy: an experimental treatment of HIV infection. *AIDS Asia* 1995;Jul-Aug, 2(4):6-7.
9. Sarkar S, Pranava M, Marita R. Demonstration of the hypoglycemic action of *Momordica charantia* in a validated animal model of diabetes. *Pharmacol Res* 1996;33(1):1-4.
10. Senanayake GV, Maruyama M, Shibuya K, et al. The effects of bitter melon (*Momordica charantia*) on serum and liver triglyceride levels in rats. *J Ethnopharmacol* 2004;Apr, 91(2-3):257-262.

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