



# TROPICAL PLANT DATABASE

**Database File for:**  
**Bitter Melon**  
(*Momordica charantia*)

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## PLANT IMAGES



Photos

**Family:** Cucurbitaceae

**Genus:** *Momordica*

**Species:** *charantia*

**Synonyms:** *Momordica chinensis*, *M. elegans*, *M. indica*, *M. operculata*, *M. sinensis*, *Sicyos fauriei*

**Common Names:** bitter melon, papaila, melao de sao caetano, bittergourd, balsam apple, balsam pear, karela, K'u kua kurela, kor-kuey, ku gua, pava-aki, salsamino, sorci, sorossi, sorossie, sorossies, pare, peria laut, peria

**Part Used:** whole plant, fruit, seed

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## WEB RESOURCES Bitter Melon

bitter melon

## BITTER MELON

### HERBAL PROPERTIES AND ACTIONS

#### Main Actions

- kills bacteria
- kills viruses
- kills cancer cells
- kills leukemia cells
- prevents tumors
- treats diabetes
- reduces blood sugar
- reduces blood pressure
- lowers body temperature
- lowers cholesterol

#### Other Actions

- reduces inflammation
- fights free radicals
- enhances libido
- cleanses blood
- detoxifies
- expels worms
- balances hormones
- enhances immunity
- mildly laxative
- promotes milk flow

#### Standard Dosage

- Leaves, Fruit
- Decoction:** 1 cup 1-2 times daily
- Tincture:** 1-3 ml twice daily
- Capsules:** 1 g twice daily

Bitter melon grows in tropical areas, including parts of the Amazon, east Africa, Asia, and the Caribbean, and is cultivated throughout South America as a food and medicine. It's a slender, climbing annual vine with long-stalked leaves and yellow, solitary male and female flowers borne in the leaf axils. The fruit looks like a warty gourd, usually oblong and resembling a small cucumber. The young fruit is emerald green, turning to orange-yellow when ripe. At maturity, the fruit splits into three irregular valves that curl backwards and release

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numerous reddish-brown or white seeds encased in scarlet arils. The Latin name *Momordica* means "to bite," referring to the jagged edges of the leaves, which appear as if they have been bitten. All parts of the plant, including the fruit, taste very bitter.

### TRIBAL AND HERBAL MEDICINE USES

In the Amazon, local people and indigenous tribes grow bitter melon in their gardens for food and medicine. They add the fruit and/or leaves to beans and soup for a bitter or sour flavor; parboiling it first with a dash of salt may remove some of the bitter taste. Medicinally, the plant has a long history of use by the indigenous peoples of the Amazon. A leaf tea is used for diabetes, to expel intestinal gas, to promote menstruation, and as an antiviral for measles, hepatitis, and feverish conditions. It is used topically for sores, wounds, and infections and internally and externally for worms and parasites.

In Brazilian herbal medicine, bitter melon is used for tumors, wounds, rheumatism, malaria, vaginal discharge, inflammation, menstrual problems, diabetes, colic, fevers, worms. It is also used to induce abortions and as an aphrodisiac. It is prepared into a topical remedy for the skin to treat vaginitis, hemorrhoids, scabies, itchy rashes, eczema, leprosy and other skin problems. In Mexico, the entire plant is used for diabetes and dysentery; the root is a reputed aphrodisiac. In Peruvian herbal medicine, the leaf or aerial parts of the plant are used to treat measles, malaria, and all types of inflammation. In Nicaragua, the leaf is commonly used for stomach pain, diabetes, fevers, colds, coughs, headaches, malaria, skin complaints, menstrual disorders, aches and pains, hypertension, infections, and as an aid in childbirth.

### PLANT CHEMICALS

Bitter melon contains an array of biologically active plant chemicals including triterpenes, proteins, and steroids. One chemical has clinically demonstrated the ability to inhibit the enzyme guanylate cyclase that is thought to be linked to the cause of psoriasis and also necessary for the growth of leukemia and cancer cells. In addition, a protein found in bitter melon, momordin, has clinically demonstrated anticancerous activity against Hodgkin's lymphoma in animals. Other proteins in the plant, alpha- and beta-momorcharin and cucurbitacin B, have been tested for possible anticancerous effects. A chemical analog of these bitter melon proteins has been developed, patented, and named "MAP-30"; its developers reported that it was able to inhibit prostate tumor growth. Two of these proteins-alpha- and beta-momorcharin-have also been reported to inhibit HIV virus in test tube studies. In one study, HIV-infected cells treated with alpha- and beta-momorcharin showed a nearly complete loss of viral antigen while healthy cells were largely unaffected. The inventor of MAP-30 filed another patent which stated it was "useful for treating tumors and HIV infections . . ." Another clinical study showed that MAP-30's antiviral activity was also relative to the herpes virus in vitro.

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In numerous studies, at least three different groups of constituents found in all parts of bitter melon have clinically demonstrated hypoglycemic (blood sugar lowering) properties or other actions of potential benefit against diabetes mellitus. These chemicals that lower blood sugar include a mixture of steroidal saponins known as charantins, insulin-like peptides, and alkaloids. The hypoglycemic effect is more pronounced in the fruit of bitter melon where these chemicals are found in greater abundance.

Alkaloids, charantin, charine, cryptoxanthin, cucurbitins, cucurbitacins, cucurbitanes, cycloartenols, diosgenin, elaeostearic acids, erythrodiol, galacturonic acids, gentisic acid, goyaglycosides, goyasaponins, guanylate cyclase inhibitors, gypsogenin, hydroxytryptamines, karounidiols, lanosterol, lauric acid, linoleic acid, linolenic acid, momorcharasides, momorcharins, momordenol, momordicilin, momordicins, momordicinin, momordicosides, momordin, multiflorenol, myristic acid, nerolidol, oleanolic acid, oleic acid, oxalic acid, pentadecans, peptides, petroselinic acid, polypeptides, proteins, ribosome-inactivating proteins, rosmarinic acid, rubixanthin, spinasterol, steroidal glycosides, stigmasta-diols, stigmasterol, taraxerol, trehalose, trypsin inhibitors, uracil, vacine, v-insulin, verbascoside, vicine, zeatin, zeatin riboside, zeaxanthin, and zeinoxanthin are all found in bitter melon.

## **BIOLOGICAL ACTIVITIES AND CLINICAL RESEARCH**

To date, close to 100 *in vivo* studies have demonstrated the blood sugar-lowering effect of this bitter fruit. The fruit has also shown the ability to enhance cells' uptake of glucose, to promote insulin release, and to potentiate the effect of insulin. In other *in vivo* studies, bitter melon fruit and/or seed has been shown to reduce total cholesterol. In one study, elevated cholesterol and triglyceride levels in diabetic rats were returned to normal after 10 weeks of treatment.

Several *in vivo* studies have demonstrated the antitumorous activity of the entire plant of bitter melon. In one study, a water extract blocked the growth of rat prostate carcinoma; another study reported that a hot water extract of the entire plant inhibited the development of mammary tumors in mice. Numerous *in vitro* studies have also demonstrated the anticancerous and antileukemic activity of bitter melon against numerous cell lines, including liver cancer, human leukemia, melanoma, and solid sarcomas.

Bitter melon, like several of its isolated plant chemicals, also has been documented with *in vitro* antiviral activity against numerous viruses, including Epstein-Barr, herpes, and HIV viruses. In an *in vivo* study, a leaf extract increased resistance to viral infections and had an immunostimulant effect in humans and animals, increasing interferon production and natural killer cell activity.

In addition to these properties, leaf extracts of bitter melon have

demonstrated broad-spectrum antimicrobial activity. Various extracts of the leaves have demonstrated *in vitro* antibacterial activities against *E. coli*, *Staphylococcus*, *Pseudomonas*, *Salmonella*, *Streptobacillus*, and *Streptococcus*; an extract of the entire plant was shown to have antiprotozoal activity against *Entamoeba histolytica*. The fruit and fruit juice have demonstrated the same type of antibacterial properties and, in another study, a fruit extract demonstrated activity against the stomach ulcer-causing bacteria *Helicobacter pylori*.

Many *in vivo* clinical studies have demonstrated the relatively low toxicity of all parts of the bitter melon plant when ingested orally. However, toxicity and even death in laboratory animals has been reported when extracts are injected intravenously. Other studies have shown extracts of the fruit and leaf (ingested orally) to be safe during pregnancy. The seeds, however, have demonstrated the ability to induce abortions in rats and mice, and the root has been documented as a uterine stimulant in animals. The fruit and leaf of bitter melon have demonstrated an *in vivo* antifertility effect in female animals; and in male animals, to affect the production of sperm negatively.

## CURRENT PRACTICAL USES

Over the years scientists have verified many of the traditional uses of this bitter plant that continues to be an important natural remedy in herbal medicine systems. Bitter melon capsules and tinctures are becoming more widely available in the United States and are employed by natural health practitioners for diabetes, viruses, colds and flu, cancer and tumors, high cholesterol, and psoriasis. Concentrated fruit and seed extracts can be found in capsules and tablets, as well as whole herb/vine powders and extracts in capsules and tinctures.

### BITTER MELON (leaf/stem) PLANT SUMMARY

**Main Preparation Method:** leaf decoction or capsules

**Main Actions (in order):**

anticancerous, antiviral, antibacterial, digestive stimulant, hypoglycemic

**Main Uses:**

1. for cancer
2. for viral infections (HIV, herpes, Epstein Barr, hepatitis, influenza, and measles)
3. for bacterial infections (*Staphylococcus*, *Streptococcus*, and *Salmonella*)
4. as a bitter digestive aid (for dyspepsia and sluggish digestion)
5. for diabetes

**Properties/Actions Documented by Research:**

antibacterial, anticancerous, anti-fertility, antileukemic, antiprotozoal, antitumorous, antiviral, hypoglycemic, immune stimulant

**Other Properties/Actions Documented by Traditional Use:**

antifungal, anti-inflammatory, antimalarial, antiparasitic, antiseptic, bitter, carminative (expels gas), digestive stimulant, febrifuge (reduces fever), hypotensive (lowers blood pressure), lactagogue (promotes milk flow), menstrual stimulator, purgative, vermifuge (expels worms), wound healer

**Cautions:** It may lower blood sugar levels.

**BITTER MELON (fruit/fruit seed) PLANT SUMMARY**

**Main Preparation Method:** fruit juice

**Main Actions (in order):**

hypoglycemic, hypocholesterolemic (lowers cholesterol), antibacterial, carminative (expels gas), bitter

**Main Uses:**

1. for diabetes
2. for high cholesterol and triglyceride levels
3. for H. pylori ulcers
4. as a bitter digestive aid for intestinal gas, bloating, stomachache, and sluggish digestion
5. for intestinal parasites

**Properties/Actions Documented by Research:**

abortive, contraceptive, antimicrobial, hypocholesterolemic (lowers cholesterol), hypoglycemic

**Other Properties/Actions Documented by Traditional Use:**

antifungal, antiparasitic, antivenin, bitter, cardiotoxic (tones, balances, strengthens the heart), digestive stimulant, emetic (causes vomiting), menstrual stimulator, purgative (strong laxative), vermifuge (expels worms)

**Cautions:** It lowers blood sugar levels and has abortive and contraceptive effects.

**Traditional Preparation:** 1 cup of a standard leaf or whole herb decoction is taken one or two times daily, or 1-3 ml of a 4:1 tincture is taken twice daily. Powdered leaf in tablets or capsules - 1 to 2 g can be substituted, if desired. The traditional South American remedy for diabetes is to juice 1-2 fresh bitter melon fruits and drink twice daily. For seed or fruit extracts in capsules or tinctures, follow the label instructions.

**Contraindications:**

- Bitter melon traditionally has been used as an abortive and has been documented with weak uterine stimulant activity; therefore,

it is contraindicated during pregnancy.

- This plant has been documented to reduce fertility in both males and females and should therefore not be used by those undergoing fertility treatment or seeking pregnancy.
- The active chemicals in bitter melon can be transferred through breast milk; therefore, it is contraindicated in women who are breast feeding.
- All parts of bitter melon (especially the fruit and seed) have demonstrated in numerous *in vivo* studies that they lower blood sugar levels. As such, it is contraindicated in persons with hypoglycemia. Diabetics should check with their physicians before using this plant and use with caution while monitoring their blood sugar levels regularly as the dosage of insulin medications may need adjusting.
- Although all parts of the plant have demonstrated active antibacterial activity, none have shown activity against fungi or yeast. Long-term use of this plant may result in the die-off of friendly bacteria with resulting opportunistic overgrowth of yeast (*Candida*). Cycling off the use of the plant (every 21-30 days for one week) may be warranted, and adding probiotics to the diet may be beneficial if this plant is used for longer than 30 days.

**Drug Interactions:** Bitter melon may potentiate insulin and anti-diabetic drugs and cholesterol-lowering drugs.

WORLDWIDE ETHNOMEDICAL USES	
<b>Brazil</b>	for abortions, burns, colic, constipation, dermatosis, diabetes, diarrhea, eczema, fever, flu, hemorrhoids, hepatitis, hives, itch, impotency, leprosy, leukemia, libido, liver inflammation, malaria, menstrual problems, pain, rheumatism, scabies, skin, tumor, vaginal discharge, vaginitis, worms, wounds
<b>China</b>	for breast cancer, diabetes, fever, halitosis, impotency, renal insufficiency, kidney problems
<b>Cuba</b>	for anemia, colitis, diabetes, fever, hyperglycemia, intestinal parasites, kidney stones, liver problems, menstrual problems, sterility (female), worms
<b>Haiti</b>	for anemia, constipation, dermatosis, eye infections, fever, liver diseases, skin problems, rhinitis, and as an appetite stimulant and insecticide
<b>India</b>	for abortions, birth control, constipation, diabetes, eczema, fat loss, food, fever, gout, hemorrhoids, hydrophobia, hyperglycemia, increasing milk flow, intestinal parasites, jaundice, kidney stones, leprosy, liver, menstrual disorders, pneumonia, psoriasis, rheumatism, scabies, skin, snakebite, vaginal discharge
<b>Mexico</b>	for bowel function, burns, diabetes, dysentery, impotency, libido, scabies, sores, worms

<b>Malaya</b>	for abdominal pain, asthma, burns, Celiac's disease, dermatosis, diarrhea, headache, intestinal parasites, stomachache, worms
<b>Nicaragua</b>	for aches, anemia, childbirth, colds, constipation, cough, diabetes, fever, headache, hypertension, infections, lung disorders, malaria, pain, pregnancy, rashes, skin problems
<b>Panama</b>	for colds, diabetes, fever, flu, gallbladder problems, hives, hypertension, itch, malaria, menstrual problems, and as an insecticide
<b>Peru</b>	for colic, constipation, contusions, diabetes, diarrhea, fever, hepatitis, inflammation, intestinal parasites, lung problems, malaria, measles, menstrual problems, skin sores, pus, wounds
<b>Trinidad</b>	for diabetes, dysentery, fever, hypertension, malaria, rheumatism, worms

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## Quoted References on Bitter Melon

10. *Momordica charantia* L. Cucurbitaceae. "Papailla", "Balsam pear". Fruit edible cooked. Plant decoction used for colic, and worms; infusion of fruit and flowers used for hepatitis. Seed pulp mixed with lard as a suppurative (SOU). Considered vermicide, stomachic, emmenagogue, and very effective in the expulsion of *Trichocephalos*. Fruit decoction used as febrifuge and emetic (PEA). Leaf decoction used by the "Cuna" for measles (RVM), by Brazilians for fever, itch, and sores (BDS). Seeds and pericarp contain saponin glycosides which produce elaterin and alkaloids, which causes vomiting and diarrhea (LAE). Leaf infusion a common folk remedy for diabetes around Iquitos (AYA). TRAMIL

cites it as relatively POISONOUS (TRA). On the patent for Compound Q for AIDS, as a source of momocharin. Also contains rosmarinic acid, with antiviral activity and calceolarioside and verbascoside."

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## Third-Party Research on Bitter Melon

Available third-party documentation and research on bitter melon can be found at [PubMed](#). A partial listing of the published research on bitter melon is shown below:

### Antimicrobial Actions (virus, bacteria, fungi):

- Puri, M., et al. "Ribosome inactivating proteins (RIPs) from *Momordica charantia* for anti viral therapy." *Curr. Mol. Med.* 2009 Dec; 9(9): 1080-94.
- Coutinho, H., et al. "Effect of *Momordica charantia* L. in the resistance to aminoglycosides in methicilin-resistant *Staphylococcus aureus*." *Comp. Immunol. Microbiol. Infect. Dis.* 2009 Sep 2.
- Braca, A., et al. "Chemical composition and antimicrobial activity of *Momordica charantia* seed essential oil." *Fitoterapia.* 2008; 79(2): 123-5.
- Fan, J., et al. "Inhibition on Hepatitis B virus *in vitro* of recombinant MAP30 from bitter melon." *Mol. Biol. Rep.* 2009; 36(2): 381-8.
- Vashishta, A., et al. "In vitro refolded napin-like protein of *Momordica charantia* expressed in *Escherichia coli* displays properties of native napin." *Biochim. Biophys. Acta.* 2006; 1764(5): 847-55.
- Das, P., et al. "Screening of antihelminthic effects of Indian plant extracts: a preliminary report." *J. Altern. Complement. Med.* 2006 Apr; 12(3): 299-301.
- Schmourlo, G., et al. "Screening of antifungal agents using ethanol precipitation and bioautography of medicinal and food plants." *J. Ethnopharmacol.* 2005 Jan; 96(3): 563
- Jiratchariyakul, W., et al. "HIV inhibitor from Thai bitter gourd." *Planta Med.* 2001 Jun; 67(4): 350-3.
- Zheng, Y. T., et al. "Alpha-momorcharin inhibits HIV-1 replication in acutely but not chronically infected T-lymphocytes." *Zhongguo Yao Li Xue Bao.* 1999; 20(3): 239-43.
- Frame, A. D., et al. "Plants from Puerto Rico with anti-*Mycobacterium tuberculosis* properties." *P. R. Health Sci. J.* 1998; 17(3): 243-52.
- Khan, M. R., et al. "*Momordica charantia* and *Allium sativum*: Broad spectrum antibacterial activity." *Korean J. Pharmacog.* 1998; 29(3): 155-58.
- Bourinbaiar, A. S., et al. "The activity of plant-derived antiretroviral proteins MAP30 and GAP31 against *Herpes simplex virus in vitro*." *Biochem. Biophys. Res. Commun.* 1996; 219(3): 923-29.
- Omoregbe, R. E., et al. "Antimicrobial activity of some medicinal plants' extracts on *Escherichia coli*, *Salmonella paratyphi* and *Shigella dysenteriae*." *Afr. J. Med. Med. Sci.* 1996; 25(4): 373-75.
- Lee-Huang, S., et al. "Inhibition of the integrase of human immunodeficiency virus (HIV) type 1 by anti-HIV plant proteins MAP30 and GAP31." *Proc. Natl. Acad. Sci.* 1995; 92(19): 8818-22.
- Dong, T. X., et al. "Ribosome inactivating protein-like activity in seeds of diverse *Cucurbitaceae* plants." *Indian J. Exp. Biol.* 1993; 25(3): 415-19.
- Zhang, Q. C. "Preliminary report on the use of *Momordica charantia* extract by HIV patients." *J. Naturopath. Med.* 1992; 3: 65-9.
- Hussain, H. S. N., et al. "Plants in Kano ethnomedicine: Screening for antimicrobial activity and alkaloids." *Int. J. Pharmacog.* 1991; 29(1): 51-6.
- Huang, T. M., et al. "Studies on antiviral activity of the extract of *Momordica charantia* and its active principle." *Virologica.* 1990; 5(4): 367-73.
- Lee-Huang, S. "MAP 30: A new inhibitor of HIV-1 infection and replication." *FEBS*

*Letf.* 1990; 272(1-2): 12-18.

Takemoto, D. J. "Purification and characterization of a cytostatic factor with anti-viral activity from the bitter melon." *Prep. Biochem.* 1983; 13(4): 371-93.

Takemoto, D. J., et al. "Purification and characterization of a cytostatic factor from the bitter melon *Momordica charantia*." *Prep. Biochem.* 1982; 12(4): 355-75.

#### **Anticancerous & Cytotoxic Actions:**

Grossmann, M., et al. "Eleostearic Acid inhibits breast cancer proliferation by means of an oxidation-dependent mechanism." *Cancer Prev. Res.* (Phila Pa). 2009; 2(10): 879-86.

Li, M., "Anti-tumor activity and immunological modification of ribosome-inactivating protein (RIP) from *Momordica charantia* by covalent attachment of polyethylene glycol." *Acta Biochim. Biophys. Sin.* (Shanghai). 2009; 41(9): 792-9.

Xiong, S., et al. "Ribosome-inactivating proteins isolated from dietary bitter melon induce apoptosis and inhibit histone deacetylase-1 selectively in premalignant and malignant prostate cancer cells." *Int. J. Cancer.* 2009 Aug 15; 125(4): 774-82.

Kobori, M., et al. "Alpha-eleostearic acid and its dihydroxy derivative are major apoptosis-inducing components of bitter gourd." *J. Agric. Food Chem.* 2008 Nov; 56(22): 10515-20.

Fan, J., et al. "Effects of recombinant MAP30 on cell proliferation and apoptosis of human colorectal carcinoma LoVo cells." *Mol. Biotechnol.* 2008 May; 39(1): 79-86.

Akihisa, T., et al. "Cucurbitane-type triterpenoids from the fruits of *Momordica charantia* and their cancer chemopreventive effects." *J. Nat. Prod.* 2007; 70(8):1233-9.

Khan, S., et al. "Bitter gourd (*Momordica charantia*): a potential mechanism in anti-carcinogenesis of colon." *World J. Gastroenterol.* 2007 Mar; 13(11): 1761-2.

Hwang, Y., et al. "Momordin I, an inhibitor of AP-1, suppressed osteoclastogenesis through inhibition of NF-kappaB and AP-1 and also reduced osteoclast activity and survival." *Biochem. Biophys. Res. Commun.* 2005 Nov; 337(3): 815-23.

Yasui, Y., et al. "Bitter gourd seed fatty acid rich in 9c,11t,13t-conjugated linolenic acid induces apoptosis and up-regulates the GADD45, p53 and PPARgamma in human colon cancer Caco-2 cells." *Prostaglandins Leukot. Essent. Fatty Acids.* 2005 Aug; 73(2): 113-9.

Ike, K., et al. "Induction of interferon-gamma (IFN-gamma) and T helper 1 (Th1) immune response by bitter gourd extract." *J. Vet. Med. Sci.* 2005; 67(5): 521-4.

Nagasawa, H., et al. "Effects of bitter melon (*Momordica charantia*) or ginger rhizome (*Zingiber officinale* Rosc.) on spontaneous mammary tumorigenesis in SHN mice." *Am. J. Clin. Med.* 2002; 30(2-3): 195-205.

Kim, J. H., et al. "Induction of apoptosis by momordin I in promyelocytic leukemia (HL-60) cells." *Anticancer Res.* 2002 May-Jun; 22(3): 1885-9.

Tazzari, P. L., et al. "An Epstein-Barr virus-infected lymphoblastoid cell line (D430B) that grows in SCID-mice with the morphologic features of a CD30+ anaplastic large cell lymphoma, and is sensitive to anti-CD30 immunotoxins." *Haematologica.* 1999; 84(11): 988-95.

Lee, D. K., et al. "Momordins inhibit both AP-1 function and cell proliferation." *Anticancer Res.* 1998 Jan-Feb; 18(1A): 119-24.

Terenzi, A., et al. "Anti-CD30 (BER-H2) immunotoxins containing the type-1 ribosome-inactivating proteins momordin and PAP-S (pokeweed antiviral protein from seeds) display powerful antitumor activity against CD30+ tumor cells in vitro and in SCID mice." *Br. J. Haematol.* 1996; 92(4): 872-79.

Bolognesi, A., et al. "Induction of apoptosis by ribosome-inactivating proteins and related immunotoxins." *Int. J. Cancer.* 1996 Nov; 68(3): 349-55.

Battelli, M. G., et al. "Toxicity of ribosome-inactivating proteins-containing immunotoxins to a human bladder carcinoma cell line." *Int. J. Cancer.* 1996 Feb; 65(4): 485-90.

Lee-Huang, S., et al. "Anti-HIV and anti-tumor activities of recombinant MAP30 from bitter melon." *Gene.* 1995; 161(2):151-56.

Cunnick, J. E., et al. "Induction of tumor cytotoxic immune cells using a protein from

- the bitter melon (*Momordica charantia*)." *Cell Immunol.* 1990 Apr; 126(2): 278-89.
- Zhu, Z. J., et al. "Studies on the active constituents of *Momordica charantia* L." *Yao. Hsueh. Hsueh. Pao.* 1990; 25(12): 898-903.
- Stirpe, F., et al. "Selective cytotoxic activity of immunotoxins composed of a monoclonal anti-Thy 1.1 antibody and the ribosome-inactivating proteins bryodin and momordin." *Br. J. Cancer.* 1988 Nov; 58(5): 558-61.
- Takemoto, D. J., et al. "Purification and characterization of a cytostatic factor with anti-viral activity from the bitter melon. Part 2." *Prep Biochem.* 1983; 13(5): 397-421.
- Takemoto, D. J., et al. "The cytotoxic and cytostatic effects of the bitter melon (*Momordica charantia*) on human lymphocytes." *Toxicon.* 1982; 20: 593-99.
- Takemoto, D. J., et al. "Guanylate cyclase activity in human leukemic and normal lymphocytes. Enzyme inhibition and cytotoxicity of plant extracts." *Enzyme.* 1982; 27(3): 179-88.
- Takemoto, D. J., et al. "Partial purification and characterization of a guanylate cyclase inhibitor with cytotoxic properties from the bitter melon (*Momordica charantia*)." *Biochem. Biophys. Res. Commun.* 1980; 94(1): 332-39.
- Clafin, A. J., et al. "Inhibition of growth and guanylate cyclase activity of an undifferentiated prostate adenocarcinoma by an extract of the balsam pear (*Momordica charantia* abbreviata)." *Proc. Natl. Acad. Sci.* 1978; 75(2): 989-93.
- Vesely, D. L., et al. "Isolation of a guanylate cyclase inhibitor from the balsam pear (*Momordica charantia* abbreviata)." *Biochem. Biophys. Res. Commun.* 1977; 77(4): 1294-99.

#### **Antidiabetic & Hypoglycemic Actions:**

- Leung, L., et al. "Anti-diabetic and hypoglycaemic effects of *Momordica charantia* (bitter melon): a mini review." *Br. J. Nutr.* 2009; 102(12): 1703-8.
- Teoh, S., et al. "A histological study of the structural changes in the liver of streptozotocin-induced diabetic rats treated with or without *Momordica charantia* (bitter melon)." *Clin Ter.* 2009 Jul-Aug; 160(4): 283-6.
- Nahas, R., et al. "Complementary and alternative medicine for the treatment of type 2 diabetes." *Can. Fam. Physician.* 2009; 55(6): 591-6.
- Shih, C., et al. "*Momordica charantia* extract on insulin resistance and the skeletal muscle GLUT4 protein in fructose-fed rats." *J. Ethnopharmacol.* 2009 May 4; 123(1): 82-90.
- Inayat-ur-Rahman, m., et al. "Serum sialic acid changes in non-insulin-dependant diabetes mellitus (NIDDM) patients following bitter melon (*Momordica charantia*) and rosiglitazone (Avandia) treatment." *Phytomedicine.* 2009 May; 16(5): 401-5.
- Nivitabishekam, S., et al. "Pharmacodynamic interaction of *Momordica charantia* with rosiglitazone in rats." *Chem. Biol. Interact.* 2009 Feb; 177(3): 247-53.
- Han, C. "Hypoglycaemic activity of saponin fraction extracted from *Momordica charantia* in PEG/salt aqueous two-phase systems." *Nat. Prod. Res.* 2008; 22(13): 1112-9.
- Cheng, H., et al. "A cell-based screening identifies compounds from the stem of *Momordica charantia* that overcome insulin resistance and activate AMP-activated protein kinase." *J. Agric. Food Chem.* 2008 Aug; 56(16): 6835-43.
- Shih, C., et al. "Effects of *Momordica charantia* on insulin resistance and visceral obesity in mice on high-fat diet." *Diabetes Res. Clin. Pract.* 2008 Aug; 81(2): 134-43.
- Tan, M., et al. "Antidiabetic activities of triterpenoids isolated from bitter melon associated with activation of the AMPK pathway." *Chem. Biol.* 2008; 15(3): 263-73.
- Singh, N., et al. "Regeneration of beta cells in islets of Langerhans of pancreas of alloxan diabetic rats by acetone extract of *Momordica charantia* (Linn.) (bitter melon) fruits." *Indian J. Exp. Biol.* 2007; 45(12): 1055-62.
- Uebanso, T., et al. "Extracts of *Momordica charantia* suppress postprandial hyperglycemia in rats." *J. Nutr. Sci. Vitaminol.* (Tokyo). 2007 Dec; 53(6): 482-8.
- Kumar, G., et al. "Modulatory effect of bitter melon (*Momordica charantia* LINN.) on alterations in kidney heparan sulfate in streptozotocin-induced diabetic rats." *J. Ethnopharmacol.* 2008 Jan 17; 115(2): 276-83.
- Sridhar, M., et al. "Bitter melon (*Momordica charantia*) improves insulin sensitivity by

- increasing skeletal muscle insulin-stimulated IRS-1 tyrosine phosphorylation in high-fat-fed rats." *Br. J. Nutr.* 2008; 99(4): 806-12.
- Fernandes, N., et al. "An experimental evaluation of the antidiabetic and antilipidemic properties of a standardized *Momordica charantia* fruit extract." *BMC Complement. Altern. Med.* 2007 Sep 24; 7:29.
- Huang, H., et al. "Bitter melon (*Momordica charantia* L.) inhibits adipocyte hypertrophy and down regulates lipogenic gene expression in adipose tissue of diet-induced obese rats." *Br. J. Nutr.* 2008; 99(2): 230-9.
- Dans, A., et al. "The effect of *Momordica charantia* capsule preparation on glycemic control in type 2 diabetes mellitus needs further studies." *J. Clin. Epidemiol.* 2007; 60(6): 554-9.
- Xiang, L., et al. "The reparative effects of *Momordica Charantia* Linn. extract on HIT-T15 pancreatic beta-cells." *Asia Pac. J. Clin. Nutr.* 2007; 16 Suppl 1: 249-52.
- Roffey, B. et al. "Water extracts from *Momordica charantia* increase glucose uptake and adiponectin secretion in 3T3-L1 adipose cells." *J. Ethnopharmacol.* 2007 May; 112(1): 77-84.
- Oishi, Y., et al. "Inhibition of increases in blood glucose and serum neutral fat by *Momordica charantia* saponin fraction." *Biosci. Biotechnol. Biochem.* 2007; 71(3): 735-40.
- Omar, S., et al. "Hypoglycemic effect of the seeds of *Momordica charantia*." *Fitoterapia.* 2007; 78(1): 46-7.
- Ojewole, J., et al. "Hypoglycaemic and hypotensive effects of *Momordica charantia* Linn (Cucurbitaceae) whole-plant aqueous extract in rats." *Cardiovasc. J. S. Afr.* 2006 Sep-Oct; 17(5): 227-32.
- Mahomoodally, M., et al. "Effect of exogenous ATP on *Momordica charantia* Linn. (Cucurbitaceae) induced inhibition of d-glucose, l-tyrosine and fluid transport across rat everted intestinal sacs in vitro." *J. Ethnopharmacol.* 2007 Mar; 110(2): 257-63.
- Lans, C. "Ethnomedicines used in Trinidad and Tobago for urinary problems and diabetes mellitus." *J. Ethnobiol. Ethnomedicine.* 2006 Oct 13; 2:45.
- Chuang, C., et al. "Fractionation and identification of 9c, 11t, 13t-conjugated linolenic acid as an activator of PPARalpha in bitter gourd (*Momordica charantia* L.)." *J. Biomed. Sci.* 2006 Nov; 13(6): 763-72.
- Krawinkel, M., et al. "Bitter gourd (*Momordica charantia*): A dietary approach to hyperglycemia." *Nutr. Rev.* 2006; 64(7 Pt 1): 331-7.
- Harinantenaina, L., et al. "*Momordica charantia* constituents and antidiabetic screening of the isolated major compounds." *Chem. Pharm. Bull.* 2006; 54(7): 1017-21.
- Abd El Sattar, E., et al. "Some toxicological studies of *Momordica charantia* L. on albino rats in normal and alloxan diabetic rats." *J. Ethnopharmacol.* 2006 Nov; 108(2): 236-42.
- Yibchok-Anun. S., et al. "Slow acting protein extract from fruit pulp of *Momordica charantia* with insulin secretagogue and insulinomimetic activities." *Biol. Pharm. Bull.* 2006 Jun; 29(6):1126-31.
- Jung, M., et al. "Antidiabetic agents from medicinal plants." *Curr. Med. Chem.* 2006; 13(10): 1203-18.
- Kumar, G., et al. "Effect of bitter gourd and spent turmeric on constituents of glycosaminoglycans in different tissues in streptozotocin induced diabetic rats." *Mol. Cell. Biochem.* 2006 Jun; 286(1-2) :53-8.
- Reyes, B., et al. "Anti-diabetic potentials of *Momordica charantia* and *Andrographis paniculata* and their effects on estrous cyclicity of alloxan-induced diabetic rats." *J. Ethnopharmacol.* 2006 Apr; 105(1-2): 196-200.
- Khan, B., et al. "Hypoglycemic activity of aqueous extract of some indigenous plants." *Pak. J. Pharm. Sci.* 2005; 18(1): 62-4.
- Zheng, Z.X., et al. "The hypoglycemic effects of crude polysaccharides extract from *Momordica charantia* in mice." *Wei Sheng Yan Jiu.* 2005 May; 34(3): 361-3.
- Reyes, B. A., et al. "Anti-diabetic potentials of *Momordica charantia* and *Andrographis paniculata* and their effects on estrous cyclicity of alloxan-induced diabetic rats." *J. Ethnopharmacol.* 2005 Nov 16;

- Sathishsekar, D., et al. "Beneficial effects of *Momordica charantia* seeds in the treatment of STZ-induced diabetes in experimental rats." *Biol. Pharm. Bull.* 2005; 28(6): 978-83.
- Shetty, A. K., et al. "Effect of bitter gourd (*Momordica charantia*) on glycaemic status in streptozotocin induced diabetic rats." *Plant Foods Hum. Nutr.* 2005 Sep; 60(3): 109-12.
- Kumar Shetty, A., et al. "Bitter gourd (*Momordica charantia*) modulates activities of intestinal and renal disaccharidases in streptozotocin-induced diabetic rats." *Mol. Nutr. Food Res.* 2005; 49(8): 791-6.
- Chaturvedi, P., et al. "Effect of *Momordica charantia* on lipid profile and oral glucose tolerance in diabetic rats." *Phytother. Res.* 2004; 18(11): 954-6.
- Vikrant, V., et al. "Treatment with extracts of *Momordica charantia* and *Eugenia jambolana* prevents hyperglycemia and hyperinsulinemia in fructose fed rats." *J. Ethnopharmacol.* 2001; 76(2): 139-43.
- Miura, T., et al. "Hypoglycemic activity of the fruit of the *Momordica charantia* in type 2 diabetic mice." *J. Nutr. Sci. Vitaminol.* 2001; 47(5): 340-44.
- Raza, H., et al. "Modulation of xenobiotic metabolism and oxidative stress in chronic streptozotocin-induced diabetic rats fed with *Momordica charantia* fruit extract." *J. Biochem. Mol. Toxicol.* 2000; 14(3): 131-39.
- Ahmad, N., et al. "Effect of *Momordica charantia* (Karolla) extracts on fasting and postprandial serum glucose levels in NIDDM patients." *Bangladesh Med. Res. Counc. Bull.* 1999; 25(1): 11-13.
- Ahmed, I., et al. "Effects of *Momordica charantia* fruit juice on islet morphology in the pancreas of the streptozotocin-diabetic rat." *Diabetes Res. Clin. Pract.* 1998; 40(3): 145-51.
- Sarkar, S., et al. "Demonstration of the hypoglycemic action of *Momordica charantia* in a validated animal model of diabetes." *Pharmacol. Res.* 1996; 33(1): 1-4.
- Ali, L., et al. "Studies on hypoglycemic effects of fruit pulp, seed and whole plant of *Momordica charantia* on normal and diabetic model rats." *Planta Med.* 1993; 59(5): 408-12.
- Akhtar, M. S. "Trial of *Momordica charantia* Linn (Karela) powder in patients with maturity-onset diabetes." *J. Pak. Med. Assoc.* 1982; 32(4): 106-7.

#### **Cholesterol-Lowering & Antioxidant Actions:**

- Chaturvedi, P. "Bitter melon protects against lipid peroxidation caused by immobilization stress in albino rats." *Int. J. Vitam. Nutr. Res.* 2009; 79(1): 48-56.
- Nerurkar, P., et al. "Lipid lowering effects of *Momordica charantia* (Bitter Melon) in HIV-1-protease inhibitor-treated human hepatoma cells, HepG2." *Br. J. Pharmacol.* 2006 Aug; 148(8): 1156-64.
- Chan, L. L., et al. "Reduced adiposity in bitter melon (*Momordica charantia*)-fed rats is associated with increased lipid oxidative enzyme activities and uncoupling protein expression." *J. Nutr.* 2005; 135(11): 2517-23.
- Chen, Q., et al. "Reduced adiposity in bitter melon (*Momordica charantia*) fed rats is associated with lower tissue triglyceride and higher plasma catecholamines." *Br. J. Nutr.* 2005; 93(5): 747-54.
- Hsieh, C. L., et al. "Inhibitory effect of some selected nutraceutical herbs on LDL glycation induced by glucose and glyoxal." *J. Ethnopharmacol.* 2005 Dec; 102(3): 357-63.
- Chaturvedi, P. "Role of *Momordica charantia* in maintaining the normal levels of lipids and glucose in diabetic rats fed a high-fat and low-carbohydrate diet." *Br. J. Biomed. Sci.* 2005; 62(3): 124-6.
- Sathishsekar, D., et al. "Antioxidant properties of *Momordica charantia* (bitter gourd) seeds on streptozotocin induced diabetic rats." *Asia Pac. J. Clin. Nutr.* 2005; 14(2): 153-8.
- Ansari, N. M., et al. "Antioxidant activity of five vegetables traditionally consumed by South-Asian migrants in Bradford, Yorkshire, UK." *Phytother. Res.* 2005; 19(10): 907-11.
- Senanayake, G.V. et al. "The effects of bitter melon (*Momordica charantia*) extracts

on serum and liver lipid parameters in hamsters fed cholesterol-free and cholesterol-enriched diets." *J. Nutr. Sci. Vitaminol.* 2004 Aug; 50(4): 253-7.

Ahmed, I., et al. "Hypotriglyceridemic and hypocholesterolemic effects of anti-diabetic *Momordica charantia* (Karela) fruit extract in streptozotocin-induced diabetic rats." *Diabetes Res. Clin. Pract.* 2001; 51(3):155-61.

Jayasooriya, A. P., et al. "Effects of *Momordica charantia* powder on serum glucose levels and various lipid parameters in rats fed with cholesterol-free and cholesterol-enriched diets." *J. Ethnopharmacol.* 2000; 72 (1-2): 331.

#### Anti-ulcer Actions:

Alam, S., et al. "Antiulcer activity of methanolic extract of *Momordica charantia* L. in rats." *J. Ethnopharmacol.* 2009 Jun 25; 123(3): 464-9.

Dengiz, G. O., et al. "Effects of *Momordica charantia* L. (Cucurbitaceae) on indomethacin-induced ulcer model in rats." *Turk. J. Gastroenterol.* 2005 Jun; 16(2): 85-88.

Yesilada, E., et al. "Screening of Turkish anti-ulcerogenic folk remedies for anti-*Helicobacter pylori* activity." *J. Ethnopharmacol.* 1999; 66(3): 289-93.

#### Anti-fertility Actions:

Girini, M. M., et al. "Effect of graded doses of *Momordica charantia* seed extract on rat sperm: scanning electron microscope study." *J. Basic Clin. Physiol. Pharmacol.* 2005; 16(1): 53-66.

Bhakuni, D. S., et al. "Screening of Indian plants for biological activity: Part XIII." *Indian J. Exp. Biol.* 1988; 26(11): 883RY-904

Koentjoro-Soehadi, T., et al. "Perspectives of male contraception with regards to Indonesian traditional drugs." *Proc. Second National Congress of Indonesian Society of Andrology.* 1982; Aug. 2-6: 12.

Dixit, V. P., et al. "Effects of *Momordica charantia* fruit extract on the testicular function of dog." *Planta Med.* 1978; 34: 280-86.

Prakash, A. O., et al. "Screening of Indian plants for antifertility activity." *Indian J. Exp. Biol.* 1976; 14: 623-626.

Stepka, W., et al. "Antifertility investigation on *Momordica*." *Lloydia.* 1974; 37(4): 645c

Jamwal, K. S., et al. "Preliminary screening of some reputed abortifacient indigenous plants." *Indian J. Pharmacy* 1962; 24: 218-20.



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