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Momordica charantia Linn- A Plant Review

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Abstract: Because of increased Bacterial resistance and many side effects of Allopathic drugs, it has become necessary today to use traditional medicine in medical problems.
In the past decade, much research has been directed on therapeutic evaluation of traditional drugs of plant origin. *Momordica Charantia* is a medicinal plant that has been used as medicine. The present study review the Research work done on plant *Momordica charantia,* with respect to its various Chemical contents, Therapeutic acitivites, uses and Medicinal details.
Key words: *Momordica charantia,* Bitter Melon.

Introduction:

Momordica charantia is a medicinal plant that has been used as as Traditional medicine and is known as known as Bitter Melon, bitter gourd, balsam pear, karela ,pare.

Momordica charantia Linn. Cucurbitaceae possess antihyperglycemia, anticholesterol, immuno-suppressive, antiulcerogenic, anti sepermatogenic and androgenic activities anti-HIV, antiulcer, anti-inflammatory, anti-leukemic, antimicrobial anti-cholesterol, immunosuppresive, and anti-tumor activities [1,2,3].

M. charantia is commonly known in English speaking countries as “bitter gourd”or “bitter melon”and is cultivatedthroughout the world for its use as vegetable as well as medicine [4,5]. The plant is also known to contain constituents -Phenolics [6] and essential oil [7,].

It grows in tropical areas of the Amazon, East Africa, Asia, India, South America, and the Caribbean and is used traditionally as both food and medicine. The plant is a climbing perennial with elongated fruit that resembles a warty gourd or cucumber. The unripe fruit is white or green in color and has a bitter taste that becomes more pronounced as the fruit ripens.[8,13]

Fig. 1: ***Momordica charantia***

Chemical constituents Identified :

Research indicates the primary constituents responsible for the hypoglycemic properties of Momordica are charantin, insulin-like peptide (plant (p)-insulin), Cucurbuta noids, momordicin, and oleanolic acids[9]. P-insulin is structurally and pharmacologically similar to bovine insulin [10]. Momordica also shows numerous other constituents including proteins, glycosides, saponins, and minerals[9]. It is also rich in vitamins A and C and beta-carotene, as well as the minerals iron, phosphorus, and potassium[11].

Subhashchandra Patel et al researched out to isolate, purify and characterize Charantin from fruit of Momordica Charantia Linn. The isolated charantin was characterized with the help of Ultraviolet Spectroscopy, Thin Layer Chromatography, Fourier Transform Infra Red Spectroscopy, Mass Spectroscopy, Proton- Nuclear Magnetic Resonance Spectroscopy confirmed the identification. Subhashchandra Patel et al Tested the antibacterial activity of charantin by using Agar Diffusion (Cup Plate) method. The minimum inhibitory concentration (MIC) of crude extracts were determined for various organism which was 0.2 mg/ml., and confirmed the better antimicrobial activity of Charantin when compared with standard, against bacterial species such as gram positive (Bacillus subtilis), gram negative (Pseudomonas aeruginosa) and fungal strains (Saccharomyces cerevisiae)[12].

Medicinal Activities:

1] Bakare RI et al studied, the effects of the aqueous leaf extract of Momordica charantia and fount that it increased enzymes activities (maltase, sucrase and lactase) in the extract treated diarrhoeagenic mice enhancing the absorptive role of these enzymes in the small intestine. This could prevent malnutrition and loss of these enzymes in diarrhoeal conditions[13].

2] Santos KK et al researched out on Trypanocide, cytotoxic, and antifungal activities of Momordica charantia. Epimastigotes were inoculated at a concentration of 1 × 10(5) cells/mL in 200 µl tryptose-liver infusion. For the cytotoxicity assay, J774 macrophages were used. The antifungal activity was evaluated by microdilution using strains of Candida albicans, Candida tropicalis, and Candida krusei. The effective concentration capable of killing 50% of parasites (IC(50)) was 46.06 µg/mL. The minimum inhibitory concentration (MIC) was ≤ 1024 µg/mL. Metronidazole showed a potentiation of its antifungal effect when combined with an extract of M. charantia.[14]

3] Baby Joseph et al worked on Antidiabetic effects of *Momordica charantia* (bitter melon) and its medicinal potency and found that, *Momordica charantia* possess the better Hypoglycaemic activity[15].

4] Sumanth Meera and Chowdary G Nagarjuna observed the Antistress potenial and immunomodulatory activity of aqueous extract of *Momordica charantia. Momordica charantia* increased the swimming time in mice significantly (P<0.001) and the results are comparable to that of standard *Withania somnifera*. *Momordica charantia* has also significantly (P<0.001) reversed the cold immobilization induced changes in glucose, AST, ALT, ulcer score, weight of adrenal gland and spleen. MC improves the phagocytic index in a dose dependent manner. MC at higher dose significantly (P<0.001) increased the percentage of adhesion of Neutrophils to nylon fibers when compared with the normal control animals[16].

5] M. Ullah et al observed[17], that *Momordica charantia* possess the Better Analgesic and Anti-inflammatory activities.

6] S.Ghosh et al worked on the In Vitro Evaluation of Antioxidant Activity of Bitter Melon (Momordica charantiaL.) and found that Momordica charantia L.) extract showed antioxidant activity by inhibiting DPPH, scavenging superoxide and hydrogen peroxide. It also showed reducing power ability in ferric reducing model. Total antioxidant capacity was found to be 19.22 mg/gm expressed as L-Ascorbicacid. Significant antioxidant activity of Water extract of Bitter Melon (Momordica charantia L.) was found which might be due to the presence of Acidic compounds, Flavonoids, Phenols, Saponins, Tannins (Phenolic compounds) and Triterpenoids etc found in the preliminary Phytochemical screening[18].

Conclusion:

The Research by various Scientists showed that, Momordica charantia contains Charantin insulin-like peptide (plant (p)-insulin), Cucurbuta noids, momordicin, and oleanolic acids. Momordica charantia possessed Better Antidiabetic, Antioxidant, Immunomodulatory, Antistress, Antimicrobial activities.

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