COMPARATIVE REVIEW ON DIFFERENT VARITIES OF MOMORDICA SPECIES


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Abstract

Momordica Species are member of the Cucurbitaceae family. Momordica charantia a family is known as bitter melon, bitter gourd, balsam pear, karela. It grows in tropical areas of the Amazon, East Africa, Asia, India, South America, and the Caribbean. It mainly contain alkaloids, momordicin and charantin, charine, cryptoxanthin, cucurbitins. It has antioxidant activity, antidiabetic activity, anticancerous activity Momordica dioica is commonly known as Parora, kakora. is a perennial, dioecious climbing creeper generally found throughout India, Pakistan, Bangladesh, Himalayas to Ceylon. It contain traces of alkaloids, steroids, triterpenoids, flavonoids, glycosides, saponins, vitamins riboflavins, niacin, protein carbohydrates, momordicin is present in seeds and momordicafoetid is present in roots Cucurbitacins and cucurbitane. It has antimalarial activity, anti-inflammatory activity, antidiabetic activity, antioxidant activity, antihyperglycemic. Momordica balsamina commonly known as Balsam apple in English, Jungli karela in Hindi. is a monoecious climber found in Punjab, western Uttar Pradesh, Rajasthan and Saurashtra. It is an annual wine native to the tropical regions of Africa and was introduced in Asia, Australia and Central America. Leaves and fruits are used as vegetab The fruit is reported to contain momordicin, vitamin C, resin acids, fixed oil, carotene, aromatic volatile oil, alkaloids, cucurbitacins and saponins. Most of the plants of genus Momordica has been found to possess antihyperglycemic, anticholesterol, immunosuppressive, antitumorogenic, anti-HIV, Antimicrobial and antifeedant.

Keywords: Momordica Species, Cucurbitaceae, Antioxidant activity, Antidiabetic activity.

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INTRODUCTION

MOMORDICA CHARANTIA

Momordica charantia a member of the Cucurbitaceae family is known as bitter melon, bitter gourd, balsam pear, karela, and pare. It grows in tropical areas of the Amazon, East Africa, Asia, India, South America, and the Caribbean and is used 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 colour and has a bitter taste that becomes more pronounced as the fruit ripens [1]. The seeds, fruit, leaves, and root of the plant have been used in traditional medicine for microbial infections, sluggish digestion and intestinal gas, menstrual stimulation, wound healing, inflammation, fever reduction, hypertension, and as a laxative and emetic [2].

VERNACULAR NAME [3]

Eng: Bitter gourd  
Hindi: Karela  
Sansk: Karavella, Kathilla, Karavalli  
Assam: Kakiral, Kakral,  
Beng: Karolla  
Guj: Karela  
Kan: Hagalakai  
Mal: Kaippa, Pavackkai

Fig.1: Momordica charantia Plant  
Fig.2: Momordica charantia Leaves

ACTIVE CONSTITUENTS

The main constituents of bitter melon (Karela) are triterpene, protein, steroid, alkaloid, inorganic, lipid, and phenolic compounds [4]. Momordica charantia (Karela) consists the following chemical constituents those are alkaloids, momordin and charantin, charine, cryptoxanthin, cucurbitins, cucurbitacins, cucurbitanes, cycloartenols, diosgenin elaostearic acids, erythrodial, galacturonic acids, gentisic acid, goyaglycosides, goyasaponins, guanylate cyclase inhibitors,
gypsogenin, hydroxytryptamines, karounidiols, lanosterol, lauric acid, linoleic acid, linolenic acid, momordenol, momordicillin, momordicinin, momordicosides, momordin, momordolo [5].

PHARMACOLOGICAL USE

MOMORDICA DIOICA
Momordica dioica Roxb. is a perennial, dioecious climbing creeper belonging to family Cucurbitaceae. Its common name is Parora, kakora [9]. This is climbing creeper generally found throughout India, Pakistan, Bangladesh, Himalayas to Ceylon. Reported up to an altitude of 1500 m in Assam and Garo hills of Meghalaya [10]. Kakroa is a Cucurbitaceous crop originated in the Indo-Malayan region [11].

VERNACULAR NAME
Hindi: Kakora, Parora, English: bittergourd, spine gourd
Bengoli: Kartoli Malyalam: Venpaval, Erima pasel
Marathi: Kartoli Sanskrit: Vahisi

MORPHOLOGICAL CHARACTER
Leaves of plant are simple membranous, broadly ovate in outline, variable in length 3.8-10cm by 3.2-8cm, cordate at the base, deeply lobed in 3-5 triangular lobes, punctated, entire but distantly denticulate, petiole 1.3-4.5cm, long channelled above, pubescent and glandular. Male flower is solitary, up to 2.8cm long and yellow coloured. Petals 1.3-2.5cm long, oblong lanceolate. Calyx five lobed, linear lanceolate. Corolla five partite, stamen three. Female flower is solitary, small

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bract below the middle of the peduncle, calyx and corolla as in male without staminodes or in form of gland three united, ovary clothed with long soft papillae and many ovuled, ellipsoid. Yellow coloured. Fruit is shortly beaked, obtuse with inner red kernel, densely echinate with soft spines, green and yellow at maturity. Seeds are rounded broadly ellipsoid, slightly compressed, slightly and irregularly corrugated enclosed in red pulp. Stem slender, branched, furrowed, glabrous and shining. Tendrils is elongated, simple, striate and glabrous [12-17].

MICROSCOPY OF LEAF OF MOMORDICA DIOICA
Detailed T.S showed a layer of upper and lower epidermis covered with thin cuticle. The cells of the upper epidermis being slightly bigger in size than the lower one and bear bone shaped trichomes. The upper epidermal cells were completely covered with covering, glandular trichomes, where they were few in number. Just below the epidermis cortex is filled Spongyparenchyma cell and collenchyma which are different size. It is a dimorphism, dicot, angiosperm, vegetative in nature, in this Vascular bundle is present. Palisade layer is present in complex form and also contain crystal sheath [18].

ACTIVE CONSTITUENTS
Momordica dioica is as dioeciously climbing herb belonging to family Cucurbitaceae. It contains many phytoconstituents. Phytoconstituents of Momordica dioica are traces of alkaloids, steroids, triterpenoids,[19] flavonoids, glycosides, saponins,[20] triterpenes of urisolic acid dark brown semidrying oil and saturated fatty acids, ascorbic acids, vitamin A, thiamine, riboflavins, niacin, protein carbohydrates, lectins,[21] ascorbic acids, carotenes, bitter principles, oleanoic acid, stearic acid, gypsogenin, alpha-spiransterol hederagenin, momordicaursenol [22]. The alkaloid present in seed called momordicin and present in root called momordicafoetid. Cucurbitacins and cucurbitane glycosides: structures [23]. The chemical constituents of the rhizome of Momordica dioica revealed the presence of β-sitosterol saponin glycosides and alkaloids [24].

PHARMACOLOGICAL ACTIVITY

MOMORDICA BALSAMINA
Drug consists of fresh fruits of Momordica balsamina Linn. (family-Cucurbitaceae) is a monoecious climber found in Punjab, western Uttar Pradesh, Rajasthan and Saurashtra. It is an
annual wine native to the tropical regions of Africa and was introduced in Asia, Australia and Central America. Leaves and fruits are used as vegetable [27-29].

**VERNACULAR NAME** [30]

Hindi: Jungli karela  
French: De Merville  
Nigeria: Ejirin

**ACTIVE CONSTITUENTS**

The fruit is reported to contain momordicin, vitamin C, resin acids, fixed oil, carotene, aromatic volatile oil, alkaloids, cucurbitacins and saponins [31].

**PHARMACOLOGICAL ACTIVITY**

Most of the plants of genus Momordica has been found to possess antihyperglycemic, anticholesterol, immunosuppressive, antiulcerogenic, anti-HIV, Antimicrobial and antifeedant [32-33]. *Momordica balsamina* is a native of tropical regions of Africa. Leaves and fruits are used as vegetable. Fruit pulp of the plant is infused in olive or almond oil and this preparation is used as an application to chopped hands, burns and haemorrhoids and mashed fruit are used as a poultice. Leaf infusion is used as anti-emetic. Leaf extract is used for the management of high fever, excessive uterine bleeding and for the treatment of syphilis. It is also used in the treatment of rheumatism, hepatitis and skin diseases, diabetics, and gastroenteritis [34].

**CONCLUSION**

The traditional knowledge system in the world is fast disappearing. So there is an urgent need for inventorying, recording and to investigate all ethno botanical information. We concluded that Momordica species are a potential herb in the world. These medicinal plants have dual
significance; first for promising future food, secondly for future pharmacological activity due to its some active constituents. These data may provide a base to start the search related to phytochemistry, pharmacology, Pharmacognosy, and general investigation to reseahers, as well as practitioners related to these plants. Therefore attention should also be made on proper exploitation and utilization of these medicinal plants.

REFERENCES


