JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

"Momordica dioica: A Comprehensive Review of Its Ethnobotany, Phytochemistry, and Therapeutic Potential"

By Vanshika Huge[1], Pallavi Dhole[2], Sujit Rathod [3] Savita Pathare[4], Amol Wadhave[5]
1, 2,3 Student Sdmvm's Diploma in Pharmacy Institute, Chh.Sambhajinagar
4 Lecturer Sdmvm's Diploma in Pharmacy Institute, Chh.Sambhajinagar
5 Principal Sdmvm's Diploma in Pharmacy Institute, Chh.Sambhajinagar

Abstract

Momordica dioica is a perennial, dioecious, cucurbitaceous climbing creeper (commonly known as kakrol, spiny gourd or teasle gourd). It is native to Asia with extensive distribution in India and Bangladesh. It is used not only as preventive and curative agent for various diseases but also as vegetable with a significant nutritional value over thousands of years.Momordica dioica is a perennial, dioecious; cucurbitaceous climbing creeper (commonly known as kakrol, spiny The change in quality of spine guard was determined by analyzing the change in proximate, minerals, functional group, chlorophyll, ascorbic acid, and antioxidant characteristicgourd or teasle gourd) plant is used both in the prevention and cure of various diseases and in the food of humans. It is necessary that we should have full knowledge regarding the therapeutically use and pharmacology activities for their proper utilization.Seeds are rounded broadly ellipsoid, slightly compressed, slightly and irregularly corrugated enclosed in red pulp.

Keywords: M. Diocia, phytochemical, Ethno botanical, phytotherapeutical, pharmacological

Introduction

In developing nations, numerous types of edible wild plants are exploited as sources of food hence provide an adequate level of nutrition to the inhabitants. Recent studies on agro pastoral societies in Africa indicate that these, plant resources play a significant role in nutrition; food security and income generation.Furthermore, Food and Agricultural Organization (FAO) report, at least one billion people are thought to use wild foods in their diet.Momordica dioica Roxb. Willd is a perennial, dioceous climbing creeper belonging to family Cucurbitaceae. Its common name is Parora, kakora.Momordica genus contains about 80 species. [1]Fruits of Momordica charantia are used in asthma, burning sensation, colic, constipation, cough, diabetes, fever (malaria), gout, helminthiases, inflammation, leprosy, skin diseases, ulcer, and wound. It has also been shown to have hypoglycaemic properties in animal as well as human
studies. Juice of the plant leaves is used to treat piles completely. It is used as a blood purifier due to its bitter tonic properties. It can heal boils and other blood-related problems that show up on the skin. Juice of karela is also beneficial in treating and preventing liver damage . In India, Momordica charantia is used by tribal people for abortions, birth control, increasing milk flow, menstrual disorders, vaginal discharge, constipation, food, diabetes, hyperglycemia, jaundice, stones, kidney, liver, fever, gout, eczema, fat loss, hemorrhoids, hydrophobia, intestinal parasites, skin, leprosy, pneumonia, psoriasis, rheumatism, scabies, snakebite, vegetables, piles, tonic, anthelmintic, purgative. However, it is commonly consumed as vegetable .Momordica dioicaThe plant is

sometimesfound growing wild and is common in hedges. It is often cultivated for its fruits, which are used as vegetables. The Teasle gourd is a cucurbitaceous popularsummer vegetable. The fruits, young twigs, and leaves of this crop are used as a vegetable or cooked as a vegetables . It is available in the forest of dry and moist deciduous in feeding months August to February. The Teasle gourd is an important summer vegetable in Bangladesh and the Indian subcontinent. It has many advantages, like high market price, good nutritional value and keeps quality longer[2]Momordicadica dioica is a type of vine that bears fruit from November to September and flowers from June to July. Because the male and female flowers are born apart, the plant is monosexual. Both male and female nodes produce flower buds. Beginning in the second week of August and continuing until the first week of October, male buds are generated. From Momordica dioica is a perennial,dioecious climber belonging to the Cucurbitaceaefamily

Synonyms [10]

English	Small bittergourd,spine gourd
Bengoli	Kartoli
Malyalam	Venpaval, Erima pasel
Tamil	Aegaravalli, Tholoopavai
Cannad	Madahagala –Kayi
Assam	Batkarila
Hindi	Kakora, Parora
Sanskrit	Vahisi
Marathi	Kartoli
Telagu	Karkotaki, Agakara
Panjabi	Dharkarela

Table no:1

Traditional uses of Momordica dioica

Fruits:

The Fruit of Momordica dioica plant are green and generally used as vegetable by local people.It is shown in photoinage no.1. This fruit also used as medicine on health problem. Fruit are diuretic increased production of urine, salexiteric, hepatoprotective, and used to treat certain venomous bites. It is also used to cure asthma, leprosy, excessive salivation, prevent the inflammation caused by lizard, snake bite, elephantiasis, fever, mental disorders, digestive disorders and troubles of heart and to treat discharge from mucous membrane. t.[8]

Fig.1. Momordica dioica fruit

2.2. **Leaves**:

The leaves of Momordica dioica plant are used in India as a folk remedy for diabetic patient.It is shown in photoimage no.2. Juice of leaves worked as pain relief, the juice of the leaves mixed with coconut, pepper, red sandalwood in order to form an ointment and applied to the head to relieve pain in the head. In skin disease leaf paste of this plant more effective. Leaf paste is used both orally and external application[8]

Fig .2. Momordica dioica leaves

2.3. **Roots:**

Roots of the Momordica dioica are full of medicinal value. Spine guard tubers are styptic in nature and toasted roots or its powder is used in bleeding piles. The local people its tuber are used with honey in headache problem. The root juices of Momordica dioica plant are also used to relieve inflammation caused by lizard excretion [8]

Fig .3. Momordica dioica roots

Scientific classification of Momordica dioica [5]

Kingdom	Plantea
Subkingdom.	Tracheobionata
Superdivision.	Speramatophyata
Division	Mangoliophyta
Class	Mangoliopsida

Subclass	Dilleniidae
Order	Violates
Family	Cacurbitaceae
Genus	Momordica
Species	Dioica

Table no :2

PHARMACOLOGICAL ACTIVITY:

1. Antidiabetic Activity:

Antidiabetic specifically oral hypoglycemic effects of Momordica dioica in rat model was screened by Fernandopulle et al. Reddy et al. and Singh et al. showed aqueous, chloroform, ethyl acetate and ethanolic extract of fruit mediated antidiabetic activity in alloxan induced experimental rats. Moreover, Sharma and Arya reported ethyl acetate and ethanol extract containing steroids, triterpenoids had potential role in alloxaninduced diabetic rats and broadly type 2-diabetes.[1]

2. Antimicrobial Activity

Shrinivas et al. studied methanolic extract and aqueous extract of fruit and found that methanolic extract had more promising antimicrobial activity . Arekar et al. screened antibacterial activities of ethyl acetate extract. The concentration of 200 µg/disc was more active against E. coli compared to S. aureus, S. paratyphi, and P. mirabilis bacteria. [11]

3. Antioxidant Activity:

G. vijaykumar et al also worked on antioxidant properties of extract of Momordica dioica roots by using (DPPH) to determine the Free radical scavenging activity and resulted spine gourd root extract has shown IC50 value of 76.55 ug/ml of male plant, and 290.28ug/ml for female plants respectively.

4. Anti-inflammatory and or Analgesic Activity:

Anti-inflammatory activity was studied by Carrageenin-induced edema in rats, and 60% oedema inhibitions were observed with 300 mg/kg methanol extract of dried leaves of Momordica charantia, which was nearly equivalent to that of 10 mg/kg of indomethacin. The anti-inflammatory effect was significant ($p<0.001$) in the dose of 100, 200, and 300 mg kg-1of methanol extract when compared to the control Group 95.

5. Antimicrobial Activity:

Shrinivas et al. studied methanolic extract and aqueous extract of fruit and found that
methanolic extract had more promising antimicrobial activity. Arekar et al. screened antibacterial activities of ethyl acetate extract. The concentration of 200 g/disc was more active against E. coli compared to S. aureus, S. paratyphi, and P. mirabilis bacteria

6. **Antiulcer Activity**

Vijayakumar screened Momordica dioica extract mediated antiulcerogenic effect on ethanol-induced ulcer model of rat. A significant decrease occurred in the level of H+-K+ATPase, volume of gastric juice, and acid output. Gastric wall mucus, pH, and catalase enzyme were increased significantly but antioxidant enzyme levels of superoxide dismutase were decreased . Its gastroprotective and ulcer healing activities were also observed by Vijayakumar et al. [12].

7. Anticancer Activity

Luo et al. showed that the CHCl3 extract of roots and five isolated constituents had anticancer activity during pharmacological testing on cancer cell (L1210). The growth inhibitory index (%) of α-spinasterol-3-o-β-D-glucopyranoside was shown to be 50%, at the dose of 4 µg/mL [12].

8. Antimicrobial Activity

Shrinivas et al. studied methanolic extract and aqueous extract of fruit and found that methanolic extract had more promising antimicrobial activity Arekar et al. screened antibacterial activities of ethyl acetate extract. The concentration of 200 µg/disc was more active against E. coli compared to S. aureus, S. paratyphi, and P. mirabilis bacteria.[12]

Nutritional value.

Vitamins (g/100g)	**m.diocia**	**Recommended dietary allowances (mg/day**
Vitamin A	2.5	-
Vitamin B1(Thimine)	1.8	1.7
VitaminB2(Riboflavin	3.5	1.7
Vitamin B3(Niacin)	1.9	18
Vitamin B5(pathogenic acid)	18	-
Vitamin B6(pyridoxine)	4.3	2.0
Vitamin B9(folic acid)	3.6	0.2
Vitamin 12(cyanocobalamin)	-	40
Vitamin C(ascorbic acid)	4	0.001
Vitamin D2&3(cholecalciferol)	3	-
Vitamin H(Biotin)	6.5	-
Vitamin K(phytonadione)	15	-

Table no:

Chemical constituents

It contains ashes: 9.1%, crude protein: 5.44%, crude lipid: 3.25%, crude fiber: 22.9%, and carbohydrate: 59.31%. Its fruit has high energy value (288.25 kcal/100 g) in dry weight.

In another investigation, its nutritional value of per 100 g edible fruit is reported to contain 3.1 g protein, 3.1 g fat, 3.0 g fibre and 1.1 g minerals and small quantities of essential vitamins like carotene, thiamine, riboflavin sand niacin

Conclusion

traditional medicine, medicinal plants have long been utilized. Both ancient humans and our predecessors relied heavily on plants to help them recover from illnesses. However, it's annoying that people are now more likely to avoid natural sources of illness prevention than artificial ones. because there is a global health alert due to the ongoing reports of antibiotic resistance and synthetic medication side effects worldwide. Everyone is concerned about the increased prevalence of diabetes, cancer, obesity, hypertension, and neurological illnesses in the world. To determine the causes and solutions, extensive research is conducted. Therefore, the need of the hour is to find a better substitute for synthetic drugs. In order to combat these issues, medicinal plants could be a smart choice. It contains significant amount of antioxidant, vitamin, secondary metabolites, and other important ingredients,

these may be helpful to fight against several diseases including diabetes, cancer, and neurodegenerative diseases. But, before that their previous use and curability should be justified. Medicinal plants are the source of enormous secondary metabolites. The diverse role of secondary metabolites may provide a key of the door of undiscovered remedy against disease

Reference

1. Phyto-Pharmacology Of Momordca Dioica: A Review"Doli R. Das, *1 Anupam Kr. Sachan, 1 Mohd. Shuaib,2 Mohd. Imtiyaz3issn 2320-4850 Www.Ajprd.Com

2.Comparative Review Of Momordica Charantia And Momordica Dioica: An Updatemaharudra S. Rakh * 1 And J. Banurekha2p.V.P. College Of Pharmacy Patoda, Beed - 414204, Maharashtra, India,Issn0975-8232

3. An Over View On Momordica Dioica Roxb Seeds It's Phytochemical,
Antimicrobial And Antioxidant Activityv. Asha Ranjani*, G. Tulja Rani, P. Archana, S. Sadik And T. Sravanmalla Reddy Pharmacy College, Maisammguda, Dhulapally, Medchal District, Hyderabad.Issn2345-2229

4. Deepak Kumar Jha*1, Raju Koneri2, Suman Samaddar2 Department Of Pharmacology, Karnataka College Of Pharmacy, Bangalore, Karnataka, India. *Corresponding Author's E-Mail:Deepkjha736@Gamail.Com

5. A Review On Momordica Dioica Fruitsanjana M1, Swathi V2*, Ramya Sai A2, Divya N2 And Sunisha Y21Department Of Pharmaceutical Chemistry And Phytochemistry, Nirmala College Of Pharmacy, Atmakuru (V), Manglagiri, Andhra Pradesh, India2Department Of Pharmacology, Nirmala College Of Pharmacy, Atmalaru Mangalagiri,Andhra Pradesh
Issn2639-1368

6. Momordica Dioica: A Medicinal Plant, Its Benefits And Pharmacological Activityankita P. Jatale 1, *, Gayatri B. Jaiswal 2, Payal G. Kabra 3, Chhaya V. Mahajan 4 And Swati P. Deshmukh 5 Issn 2582-3250

7. Studies On Phytochemical Analysis And Biological Activities In Momordica Dioica Roxb Through Fruit Venkateshwarlu M, Nagaraju M, Odelu G, Srilatha T And Ugandhar T Issn2277-7695

8. The Study Of Phytochemicals, Traditional And Pharmacological Uses Of Momordica Dioica Roxb. Ex. Willd: A Review1varsha K. Dakhure, 2Bhagwat D. Gachande1Research Student, 2Associate Professor 1 , 2Botany Research Laboratory& Plant Disease Clinic, N.E.S. Science College, Nanded, India.Email – 1dakhurevarsha2014@Gmail.Com, 2 Gachandebhagwat@Gmail.Com, Issn 2455-0620

9. Pharmacognostic Evaluation Of Momordica Dioica Fruitsubhashchandra K. Patel 1,2*, Hirenkumar R. Chaudhary3 And Tejal R.Department Of Pharmacology, Anand Pharmacy College, Gujarat Technological University, Anand (Gujarat), India.(Corresponding Author: Subhashchandra K. Patel*)Issn 0975-1130

10. Phyto-Pharmacology Of Momordica Dioica Roxb. Ex. Willd: A Review Bhavana Bawara 1, Mukesh Dixit 2, N. S Chauhan3, V. K. Dixit3, D.K .Saraf 1*Corresponding Author: Prof. D. K. Saraf 1Department Of Zoology, Dr. H. S. Gour University Sagar MP, 470003 India Email: Drdksaraf@Gmail.Com 2Lake Conservation Board, Environment Campus, (M.P) India . Issn 0970-5767

11. An Ethnomedicinal, Phytochemicalof Momordica Dioica Roxb.G S Deora, Vishal Sharma*, Monika K Department Of Botany,University College Of Science,*Corresponding Author: E-Mail:Vishalkhandal133@Gmail.Com

12. Phytochemical, Phytotherapeutical And Pharmacological Study Of Momordica Dioica
.Sattya Narayan Talukdar 1, Mohammad Nazir Hossain 1,2 Copyright And License InformationPMCID: PMC4145798 PMID: 25197312

13. REVIEW ON MOMORDICA DIOICA Pragati S. Raut*, Nikita K. Gadekar, Bhagyashree Mokale And Dr. Gajanan Sanap Late Bhagirathi Yashwantrao Pathrikar College Of D Pharmacy (D Pharm & B Pharm), Pathri, Aurangabad – 431111, Maharashtra, India.