



# Potential Bio-Resource Of *Momordica Dioica* Roxb. (Spine Gourd)

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## ❖ Abstract:

*Momordica dioica* Roxb. (spine gourd) is an underutilized cucurbit well known for its nutritional richness and therapeutic potential. It contains diverse phytochemicals such as flavonoids, alkaloids, saponins, triterpenoids, and phenolic compounds. Traditionally used as food and medicine, it exhibits several pharmacological activities including antioxidant, anti-diabetic, antimicrobial, hepatoprotective and anti-inflammatory effects. This review highlights the bio-resource potential of *M. dioica* focusing on its phytochemical composition, ethno medicinal applications, nutraceutical value, and prospects for drug development and commercial utilization.

## ❖ Key word :

Cucurbitaceae, Curative Agent, Nutritional Value, *Momordica dioica* chemical constituents, Phytochemical screening, Methanol and ethanol.

## ❖ Introduction:

*Momordica dioica* The discourse climbing creeper Roxb. Spiny guard, kakara, and parora are some of its common names[1]. June to July is flowering season, while September to November is fruiting season [2].A plant known for its nutritional value and traditional therapeutic uses is *Momordica dioica*.

It has a specific composition of compounds known as phyto constituents, which include amino acids, sterol, flavonoids, tannins, alkaloids, and fixed oil. [3].Acne and pimples are treated by applying tender fruits to the skin[4].According to Sastri , it is frequently grown for its edible fruit.



**Fig no1: Different part of M.dioica**

**Taxonomic classification Table 1:**

**Scientific classification of spine gourd[13]**

<b>Kingdom</b>	Plantae
<b>Sub-kingdom</b>	Tracheobionata
<b>Super-division</b>	Spermatophyta
<b>Division</b>	Magnoliophyta
<b>Class</b>	Magnoliophyta
<b>Sub-class</b>	Dilleniidae
<b>Order</b>	Violales
<b>Family</b>	Cucurbitaceae
<b>Genus</b>	Momordica
<b>Species</b>	Dioica

**Parts of plant:**

**1]Fruit:** It has several therapeutic qualities, including diuretic, laxative, and hepato protective. Additionally, it treats leprosy, elephantasis, asthma, and snake bites .[7]

**2] Leaves and flower:** To treat headaches, the leaf juice is combined with coconut, pepper, red sandal wood, and other ingredients to create an ointment that is administered to the head.[8]

**3] Root :** For a number of ailments, M. Dioica roots are quite helpful. Among the medications it contains are Spermicidal and Abortifacient. used extensively to treat urinary infections and bleeding piles[9]

**Nutritional value:**

The fruit of Momordica dioica has the following contents: 3.09 fiber, 3.19 protein, 7.79 carbohydrates, and 8.11 humidity. Small levels of vitamins, including ascorbic acid, carotene, thiamine, niacin, and riboflavin, are contained in that. Large amounts of the protein phytochemical are found in leaves. Ash 3–4 p.c., an alkaloid, and a scrap extractive matter are also present in Momordica Dioica. There is a trace of manganese in ash. [10]

## Reported uses *M.dioica*:

- 1.Anti-Oxidant
- 2.Anti diabetic
- 3.Anti-malarial
- 4.Anti-ulcer

## Botanical description

→The literature indicates that there is a 22% chance of fruit setting in a typical environment and a 100% chance when hand pollination is used. Both male and female flower buds are produced by each node. The production of male buds begins in the second week of August and lasts until the first week of October. The female flowers are available from the first to the second week of September to the third week of October. [11]

## Ayurvedik value:

Root extracts have a superficial effect on high fevers when administered all over the body. The leaf paste is taken orally to treat a variety of skin conditions, including acne, pimples, and skin softening .[12]

## Chemical constituents

Table no 2 :

It contains more nutrient-dense edible fruits, including:	
<b>Moisture</b>	84.1%
<b>Carbohydrates</b>	7.7g
<b>Fat</b>	3.1g
<b>Protein</b>	3.1g
<b>Minerals</b>	1.1g
<b>Fiber</b>	3.0g
<b>Vitamins</b>	Niacin, Riboflavin, Thiamin, Carotene and Ascorbic Acid.
<b>8. Fruits containing traces of alkaloids and ascorbic acid, including lectins, <i>b</i>-sitosterol, saponins, glycosides, ursolic acid triterpenes, hederagenin, oleanolic acid, aspiranosterol, stearic acid, and gypsogenin—two new aliphatic constituents—have been identified through phytochemical investigation.</b>	

### **Pharmacological activity:**

1. **Anti - diabetic** : Used ethanol, water, chloroform, and ethyl acetate as solvents to study antidiabetic activity. Albino wister strain rats were given alloxan to induce diabetes.[14]
2. **Anti – ulcer**: The ethanol-induced ulcer model in rats was used by Fernandopulle et al. to screen for the anti ulcerogenic effect of Momordica dioica extract.[14]
3. **Anti - malarial** : Investigated alcoholic extracts both in vitro and in vivo for antimalarial effects against the NK65 strain of Plasmodium berghei, *Jurinea Macrocephala*, and *Aegle marmelos*.[15]
4. **Anti - cancer exertion**: At a concentration of 4  $\mu$ g/ml, the growth inhibitory indicator () of a-Spinasterol-3-O-B-D glucopyranoside was found to be 50.[16]
5. **Anti- fertility exertion**: The extracts generated a considerable increase in uterine weight and shown moderate estrogenic exertion[17]
6. **Neuroprotective exertion**: By employing neuro pharmacological experimental paradigms in mice, the effects of methanol and a waterless fruit pulp extract on the central nervous system were observed. These passages were used to reduce the duration and commencement of a decrease in loco motor exertion in a cure-dependent manner.[18]



**Fig no2: Momordica dioica fruit**

### **Special characteristic**

1. The leaves are tiny.
2. Little yellow-coloured flowers.
3. There are no round dots on the petal bases.
4. Fruits that are dark.
5. The duration of flowering and fruiting is extended.
6. Each fruit weighs approximately 10–15 g and can weigh up to 30 g.
7. Fruit begins to ripen from the inside out.
8. Fruit with smooth, fake spines.
9. Roots produce little tubers.
10. It has nine to ten hard seeds.[6]

## Advantages of health:

- **Rich in antioxidants:** phenolic compounds and flavonoids are found. Traditionally, anti-diabetics were used to lower blood sugar levels.
- **Digestive aid:** A high-fiber diet supports intestinal well-being.
- **Anti-inflammatory:** In Ayurvedic medicine, used to reduce inflammation 18 4.3 2.0 3.60.2 4 0.001 40 3. 6.5 15 Benefits to Health Spiny gourd is rich in nutrients and offers additional health benefits.
- **Blood Sugar Regulation:** Spiny gourd contains compounds that may assist diabetics manage their blood sugar levels.
- **Properties of Antioxidants:** Rich in antioxidants, it combats oxidative stress and may reduce the risk of chronic diseases.
- **Weight control:** Low in calories and high in fiber, spiny gourd can aid in weight control by promoting satiety.
- **Digestive Health:** Its high fiber content supports a healthy digestive system and relieves constipation.
- **Skin Health:** By promoting a clear complexion and preserving healthy skin, vitamins A and C may reduce the signs of aging.
- **Liver Detoxification:** By promoting liver function and detoxification processes, spiny gourd may assist the body in getting rid of toxins.
- **Immune System Support:** The vitamins and minerals in spiny gourd can help the body fight off illnesses and infections. Effects that reduce inflammation. Because of its anti-inflammatory qualities, it may help with ailments like arthritis.
- **Culinary Uses:** There are numerous ways to prepare the versatile ingredient spiny gourd. It can be used to give texture and nuttiness to stews or vegetable curries.[6]

### ❖ Conclusion:

Momordica dioica Roxb. is a highly valuable yet underutilized bio-resource with remarkable phytochemical diversity and strong pharmacological potential. Its nutritional and medicinal properties support its application in nutraceutical, pharmaceutical and functional food industries. Further scientific validation, commercialization and biotechnology interventions can enhance its global utilization.

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