



EXPLORING THE MULTIFACETED MEDICINAL PROPERTIES OF ZIZIPHUS MAURITIANA

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Abstract: *Ziziphus mauritiana* is a traditional plant that belongs to the "Rhamnaceae" family. It is also known as Chinese date, Ber, or Indian jujube. This species is thought to have originated in the Indo-Malaysia region of Southeast Asia. It has been widely naturalized throughout the tropics, from South Africa to the Middle East and the Indian subcontinent. It's a spiky, evergreen shrub growing on a tiny tree. *Z. mauritiana* is a rarely used herb that can treat numerous ailments. Ancient literature suggests that all plant parts, including leaves, seeds, and fruits, have medicinal potential. *Z. mauritiana*'s therapeutic benefits stem from its various metabolites, including alkaloids, flavonoids, and terpenoids. This plant contains phytochemicals, bioactives, and vitamins, making it effective in treating and preventing many ailments. The study supported the medical characteristics and pharmacological activities of plants, including anti-cancer, anti-diabetic, anti-oxidant, anti-microbial, anti-ulcer, and anxiolytic effects, as well as medicinal purposes. This review article examines the medicinal qualities of *Z. mauritiana*, an underutilized medicinal plant.

Keywords: *Ziziphus mauritiana*, metabolites, phytochemicals, bioactive, and anxiolytic.

INTRODUCTION

India is a place of rich biological and cultural variety. It is one of the most biodiverse countries in the world. The medicinal plant has played an extremely important role in the development of human culture. Many studies have been undertaken all around the world to determine the usefulness of plants, which are showing to be extremely beneficial. Plants may typically be found in large groups and are economically complete as basic resources for industry. The cost of plant as a resource is beneficial to your health province since it allows for inexpensive therapy and disease prevention. *Ziziphus mauritiana* is an extremely long-lasting and indigenous fruit of India. *Z. mauritiana* Lam. Syn. *Z. jujuba* Lam., non-mill is a species of *Ziziphus* tourn. Previous L. family "Rhamnaceae". The name *Ziziphus* is derived from a secondhand Arabic word for *Z. lotus* (L.) Desf. However, it is also related with the prehistoric Persian lexis *Zizfum* or *Zizafun*, and the Greeks used the word *Zizipho* for the jujube. *Z. mauritiana* is a traditional plant from the family "Rhamnaceae". In India, it is also known as "Ber" in Hindi and "Badrah" in Sanskrit. It originated in the Middle East or India subcontinent and is currently cultivated throughout the tropics and subtropics due to its nutritional value. This plant has potential for both food and medicinal applications. *Ziziphus* plants and bushes thrive in unfavorable environments due to their adaptability to lack of resources. The plant provides feed for cattle and has been transformed for use in agriculture, fuel, and charcoal production. Traditional medicine relies on remedial plants to treat many diseases, and many have been studied for their pharmacological properties.

Plant parts, such as roots, have traditionally been used to treat several diseases, including pitta, fever, wounds, ulcers, and cephalalgia. Bark treats dysentery, diarrhea, gingivitis, boils, and ulcers. Seeds are useful for encephalopathy. Symptoms may include ophthalmopathy, coughing, asthma, pitta vitiation, burning sensations, diarrhea, vomiting, and sleeplessness. The leaves are useful for treating stomatitis, cuts, syphilitic

ulcers, asthma, leucorrhoea, typhoid fever, diarrhea, and obesity. The mixture of leaves is used to treat wounds, cuts, and boils. Fruits can help with pitta imbalances, hyperdipsia, consumption, vomiting, constipation, flatulence, dyspepsia, nausea, leprosy, thirst, anorexia, exhaustion, leucorrhoea, purities, sores, and ulcers. The review paper examines the therapeutic characteristics of the plant *Z. mauritiana* (Rhamnaceae). As it traverses through a range of pharmacological qualities that have been confirmed, numerous investigations have been undertaken.

Introduction to the Genus *Ziziphus*:

Ziziphus is a genus of roughly 40 thorny shrubs and small trees of the buckthorn family, Rhamnaceae, found in warm-temperate and subtropical climates worldwide. The leaves are alternating, whole, with three conspicuous basal veins, and measure 2-7 cm (0.79-2.8 in) long. Some species are deciduous, while others are evergreen. The flowers are small and inconspicuous yellow-green.

The delicious drupe fruit can be yellow-brown, red, or black, globose or oblong, and 1-5 cm (0.39-2.0 in) long. It has a sweet and syrupy texture and flavor similar to dates.

Introduction to Species:

Ziziphus mauritiana, also known as Narkeli kul, Ber, Dongs, Boro, Bor, Beri, or Indian plum, is a tropical fruit tree species from the Rhamnaceae family.

Ziziphus mauritiana is a spiny, evergreen shrub or small tree that can grow to be 15 meters tall, with a trunk 40 cm or more in diameter, a spreading crown, stipular spines, and numerous drooping branches. The fruit is of various shapes and sizes. Depending on the variety, it can be oval, obovate, oblong, or round, with lengths ranging from 1-2.5 in (2.5-6.25 cm). The flesh is white and crispy. When somewhat underripe, this fruit is delicious and has a lovely scent. The fruit's skin is smooth, glossy, thin, and tight. It is most usually seen in the tropical and subtropical areas.

Table 1: Selected species of genus *Ziziphus*

<i>Ziziphus angolito</i> Standl.	<i>Ziziphus apetala</i> Hook.f. ex
<i>Ziziphus attopensis</i> Pierre	<i>Ziziphus celata</i>
<i>Ziziphus cotinifolia</i> Reissek	<i>Ziziphus fungii</i> Merr.
<i>Ziziphus funiculosa</i> Buch.-Ham. Ex	<i>Ziziphus guaranitica</i> Malme
<i>Ziziphus havanensis</i> Kunth	<i>Ziziphus horrida</i> Roth
<i>Ziziphus hutchinsonii</i>	<i>Ziziphus incurva</i> Roxb.
<i>Ziziphus joazeiro</i> Mart.	<i>Ziziphus laui</i> Merr.
<i>Ziziphus lotus</i> (L.) Lam.	<i>Ziziphus mairei</i> Dode
<i>Ziziphus mauritiana</i> Lam.	<i>Ziziphus mexicana</i> Rose
<i>Ziziphus mistol</i> Griseb.	<i>Ziziphus montana</i> W.W.Smith
<i>Ziziphus mucronata</i> Willd. – BuffaloThorn	<i>Ziziphus platyphylla</i> Reissek
<i>Ziziphus robertsoniana</i>	<i>Ziziphus rugosa</i>
<i>Ziziphus saeri</i> Pittier	<i>Ziziphus spina-christi</i> (L.) Desf.

Geographical Distribution:

Ziziphus mauritiana is a spiny, evergreen shrub or small tree that can grow up to 15 m tall with a trunk diameter of 40 cm or more. It has a spreading crown, stipular spines, and drooping branches. The fruit is of various shapes and sizes. The oval, obovate, oblong, or round shape can range from 2.5-6.25 cm in length, depending on the variety. The flesh is white and crispy. When somewhat underripe, this fruit is delicious with a lovely scent. The fruit's skin is smooth, glossy, and thin tight. It is most typically seen in tropical and subtropical climates. Originally from India, it has spread to tropical places such as Africa, Afghanistan, and China, as well as Malaysia, Australia, and the Pacific. This plant can grow in dense stands and become invasive in certain locations, such as Fiji and Australia. In Northern Australia, it has become a severe environmental issue. This tree grows quickly and has a medium lifespan, reaching heights of 10-40 feet.

Vernacular name: It is also known as Indian Jujube; common jujube.

Table 2: Vernacular name

Language (No. of Names)	Vernacular Name
Arabic (6)	Beri, Bor, Nabbak El Fil, Nabbak-El-Fil, Nobig, Sidr
English(38)	Aprin, Baer, Baher, Bahir, Ber, Beri, Bor, Chinee Apple, Chinese Apple, Chinese Date, Chinese-Date, Coolie Plum, Cottony Jujube, Crabapple, Indian Cherry, Indian Jujube, Indian Plum, Indian-Cherry, Indian-Plum, Jujube, Ma-Tan, Malay-Jujube, Mangustine, Manzana (Apple), Manzanas, Manzanita, Perita Haitiana, Phutsa, Ponsigne, Putrea, Sour Jujube, Tao, Tao Nhuc, Widara, Yunnan Jujube, Yunnan Spiny Jujube, Yuyubi, Yuyubo
Tamil (1)	Elandhai
Hindi (1)	Ber
Sanskrit (5)	Ajapriya, Badara, Karkandhu, kuvala, madhuraphala
Gujarati(2)	Bordi, Bor
Bengali(3)	kool, ber, boroi
Telugu - (2)	Reegu, gangareegu
Tamil - (2)	Elandai, yellandeelladu
Marathi -(2)	Bar, bera

Table 3: Scientific classification

Kingdom	Plant
Division	Magnoliophyta
Subdivision	Angiosperm
Class	Magnoliopsida
Order	Rosales
Family	Rhamnaceae
Tribe	Paliureae
Genus	Ziziphus
Species	Mauritiana

Morphology:

1. Plant - *Z. mauritiana* is a spiny, evergreen shrub that grows on a small tree up to 15m tall and has a trunk diameter of 40m or more.
2. Stem - *Z. mauritiana* is a fast-growing, long-lived, spiky hierarchy that may reach up to 15m in height. It has a dispersion crown and relaxed twigs.
3. Leaves - The plant's leaves are alternating, oval, or four-sided elliptic, with a rounded height and three depressed longitudinal veins near the base. The tree has a dark green and glassy fringe and a youthful pale-green to grey-green lower portion.
4. Flowers - The flowers are small and yellowish, with delicate petals, and found in leaf axils.
5. Fruits - The fruits are safe to consume and vary in profile and size. Wild tree fruits are small and circular (about 3cm in diameter), but farmed tree fruits are often larger (5cm long and 4cm broad) and oval in profile. Depending on their categorization, they can be round, obonate, or oblong.

Plant taxonomy:

The genus *Ziziphus* includes approximately 86 species found in warm to subtropical regions worldwide. Twenty of the 86 *Ziziphus* species are found in India, while 14 are found in China. The *Ziziphus* section has two species: *Z. mauritiana*, a tropical and evergreen crop, and *Ziziphus jujube*, a cold-hardy and deciduous species that is widely farmed as a horticultural crop for fruits. In China, there are around 750 varieties of *Ziziphus jujube*, and in India, there are over 170 cultivars of *Z. mauritiana*, which differ greatly in tree habit, fruit shape, color, leaf shape, keeping quality, and fruiting season. The dense silky underside of the leaves distinguishes *Z. mauritiana* from *Z. jujuba*. In Australia, there are two native *Ziziphus* species: *Z. quadriloculare* F. Muell. And *Z. oenoplia* (L.) Mill, both belong to the *perdurans* section. *Ziziphus oenoplia* is also indigenous to India, Sri Lanka, and tropical Asia.

Nutritional value:

The fruit of *Z. mauritiana* is high in nutrients. It is thought that its fruits contain more iron than apples, and it is widely known that iron is essential for oxygen transfer in the body. Research indicates that the edible sections of this fruit have higher levels of nutrients and minerals such iron, zinc, calcium, salt, magnesium, and vitamin C. Research suggests that 100 g of pulp contains 70-165 mg of ascorbic acid (vitamin C). Its fruits are high in vitamin A and B complex. *Z. mauritiana* fruits provide 20.9 kcal per 100 g pulp, in addition to their nutritional value. The fruit is rich in proteins, carbohydrates, and micronutrients, including vitamin C, zinc (Zn), iron (Fe), copper (Cu), phosphorus (P), sodium (Na), potassium (K), and calcium. When *Z. mauritiana* fruits are in season, they play an important role in people's diets in Zimbabwe. Ber can have both sour and sweet flavors. The dry weight of the edible fraction of 100 grams of ber (sour and sweet) ranges from 21.1 to 24.1 g. A 100 g edible amount comprises 4.9–7.3 g of crude fiber, 7.9–8.7 g of crude proteins, 0.8–

1.5 g of fat, and 79.5–83.2 g of carbohydrates. *Z. mauritiana* fruits have high levels of vitamin C (15–43.8 mg per 100 g) and have an energy value of 1516–1575 kJ per 100 g.

Table 4: Concentration of different nutrients in 100 grams of fruit of *Z. mauritiana*

Nutrients	Conc. in mg /100 g of fruit	Nutrients	Conc. in mg /100 g of fruit
Calcium (Ca)	160-254	Iron (Fe)	2.1-4.3
Potassium (K)	1865-2441	Zinc (Zn)	0.6-0.9
Magnesium (Mg)	83-150	Copper (Cu)	0.7
Sodium (Na)	185-223	Phosphorus (P)	87-148

Chemical Constituent:

The plant includes protein, fat, fiber, ash, calcium, phosphorus, magnesium, potassium, sodium, chlorine, and sulfur. It also contains ceryl alcohol, alkaloids such as protopine and berberine, quercetin, kaempferol, sitosterol, stigmasterol, lanosterol, and diosgenin. The leaves include several compounds such as flavonoids, tannins, oses, holosides, mucilages, sterol, triterpenoids, cardiotoxic glucosides, and leucoanthocyanins. Fresh fruits contain protein, fat, fiber, carbohydrates, reducing and non-reducing sugars, ash, calcium, phosphorus, and iron. Carotene, thiamine, riboflavin, niacin, ascorbic acid, fluoride, and pectin. Fresh fruits contain malic, oxalic acid, and quercetin. Dried fruits include moisture, protein, fat, carbohydrates, sugar, and fiber. The main constituents are triterpenes and saponins, such as aliphatic, betulinic, maslinic, oleanolic, ursolic, 3-O-trans-aliphatic, 3-O-cis-p-aliphatic, 3-O-cis-p-coumaroyl aliphatic, 3-O-trans-p-coumaroyl aliphatic acids, zizyphus saponins I, II, III, jujuboside B, spinosin, and swertisin.

Phytochemistry:

Several *Ziziphus* species contain over 150 cyclopeptide alkaloids. *Z. mauritiana* contains several chemicals, including pectin A, glycoside, triterpenic acid, Betulinic acid, lipids, and alkaloids.

Pectin A: Pectin A was discovered in *Z. mauritiana* fruits and *Ziziphus jujube* fruit. Pectin A was discovered to contain 2, 3, 6-tri-O-acetyl D lactose units. Pectin has various pharmacological properties, including bile acid binding, cholesterol reduction, and antidiarrheal action.

Alkaloids: The stem bark of *Ziziphus* species contains a high concentration of alkaloids. Zizogenin, a sapogenin, was isolated from *Z. mauritiana*. *Z. mauritiana* isolates cyclopeptide alkaloid (*mauritiana* A, B, C, F, G, H), as well as franguloline and amphibians B, D, E, and F. *Mauritiana* J was isolated from *Z. mauritiana*'s root bark.

Triterpenoic acid: Many triterpenoic acids have been isolated from *Z. mauritiana*. Triterpenic acid extracted from the roots of *Z. mauritiana* has cytotoxic properties. Triterpenoic acids, including colubrinic acid, aliphatic acid, and 3-O-cis-p-coumaroyl aliphatic acid, 3-O-trans-p-coumaroyl aliphatic acid, 3-O-cis-p-coumaroyl maslinic acid, 3-O-trans-p-coumaroyl maslinic acid, oleic acid, zizybronic acid, and betulinic acid.

Betulinic acid: Betulinic acid, a pentacyclic triterpenoid, has shown specific cytotoxicity against a variety of tumor types. Betulinic acid has been shown to have anti-inflammatory and antibacterial properties.

Alkaloids: The seed and pericarp include phosphatidylcholines, phosphatidylglycerols, and fatty acids like linoleic, oleic, and steric acid, which are the primary active components. The diverse species of *Ziziphus* include more than 150 cyclopeptide alkaloids. Alkaloids *Z. mauritiana* contains *mauritiana* A, B, C, D, E, F, H, and Cyclopeptide alkaloids with sedative, anti-microbial, anti-diabetic, anti-plasmodium, analgesic, anti-conversant, and anti-inflammatory properties.



Fig. 1: Ziziphus Mauritiana Fruit
Mauritiana Leaves

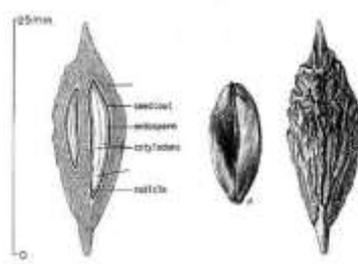


Fig. 2: Ziziphus Mauritiana Seed



Fig. 3: Ziziphus



Fig. 4: Ziziphus Mauritiana Barks
Mauritiana Flower



Fig. 5: Ziziphus Mauritiana Roots



Fig. 6: Ziziphus

Uses of *Z. mauritiana*:

1. Medicinal uses

- a. **Fruits:** A fruit can help purify your blood. Joshanda, a fruit-based concoction, is useful for chest issues. Dried ripe fruit can also be used as a laxative. These fruits are used as a digestive aid alongside salt and chili peppers.
- b. **Seed:** The kernels have soporific and sedative properties, making them useful for treating nausea, stomach pain, and vomiting during pregnancy. The kernels act as an antidote for poisoning and are used to treat diarrhea. The seed paste is applied to wounds to promote rapid healing.
- c. **Leaves:** The leaves are astringent and can help alleviate diarrhea. They are used as diaphoretics and indicated for thyroid issues in youngsters. Leaves are often placed to wounds to promote rapid healing. Leaves are also used to treat asthma and liver problems.
- d. **Barks:** The barks work as an astringent in gingivitis and can be applied to lesions. A decoction of twigs can treat dysentery and diarrhea.
- e. **Flowers:** It is used to treat skin ulcers and eye disorders. Internally, it effectively treats jaundice.
- f. **Roots:** Root powder helps heal wounds and ulcers quickly, while root decoction can treat fever.

2. Non-medicinal uses

- a. **Fruits:** Fruits are consumed in their green and dried condition. Fruits may make pleasant cocktails, both alcoholic and non-alcoholic. The fruits are also used to make jam, and the fruit powder is used in baking. It is also used in chutneys, pickles, and jams.
- b. **Seed:** Seeds are high in protein and are commonly consumed during famines.
- c. **Leaves:** The leaves are healthy, nutritious, and regenerate quickly. They can also be consumed as a vegetable. The leaves are valuable for feed. They are also helpful for feeding silkworms. The plant serves as a home for the lac bug, *Kerria lacca*, which consumes the juice from the leaves and coats them with an orange-red resin.
- d. **Barks:** The bark produces a non-fading cinnamon-colored dye and has a long history of tanning skins and dyeing.
- e. **Wood:** Wood is a valuable fuelwood and an excellent source of charcoal. The wood is close-grained, soft, robust, resilient, and suitable for planing and polishing. It is commonly used for domestic uses such as manufacturing bedstead legs, boat ribs, agricultural implements, lining wells, house poles, tool handles, yokes, gunstock, sandals, toys, and general turning and saddle trees. Flexible branches can make thorny corral walls to help keep livestock in place.
- f. **Flowers:** The blossoms are pleasant, used as a sweetener, and provide a tiny amount of nectar for

honeybees.

3. Traditionally Uses

The plant's many parts have traditionally been used to treat diseases such as vitiated pitta, fever, wounds, ulcers, and headaches. Barks are used for dysentery, diarrhea, gingivitis, boils, and ulcers.

4. Ayurvedic Properties

Rasa : Kashaya, Madhura, Amla

Guna : Lakhu, Snigdha

Virya : Seeta

Vipaka : Madhura

- a. Leaves: The leaves are bitter and cooling; they treat "kapha," biliousness, and diarrhoea; they are antipyretic and help to reduce fat. The berries are said to purify the blood and aid digestion.
- b. Fruits: Fruits can be anodyne, astringent, cooling, stomachic, styptic, and tonic (wild variety) or cultivated (ripe and dry). expectorant, mild laxative.
- c. The plant can alleviate symptoms of vitiated pitta, kapha, obesity, fever, burning feelings, cough, wound, skin illness, ulcers, stomatitis, diarrhea, sexual weakness, and overall debility.

5. Ayurvedic formulations

Badaradi churna, Badaradi kwatha, Badri phalasav, Badri patrasava, kumar kalia ghrita, Badaradi pak, Laksha kalka.

Pharmacological Activities:

1. Antidiabetic Activity: Jarald E.E. et al. conducted a 2009 study on the effects of petroleum ether, chloroform, acetone, and aqueous extract of *Z. mauritiana* on diabetes, which causes high blood sugar levels. *Z. mauritiana* fruit extracts, including petroleum ether, chloroform, acetone, and aqueous and crude aqueous extracts, shown antihyperglycemic effects in glucose-overloaded hyperglycemic rats. Antihyperglycemic extracts had hypoglycemic effects at doses of 200 and 400 mg/kg. *Z. mauritiana*'s aqueous extract and non-polysaccharide extract shown significant antihyperglycemic and hypoglycemic effects. The non-polysaccharide fraction had equivalent activity to the conventional medication "Glibenclamide".
2. Anticancer Activity: MTT analysis was conducted to assess the cytotoxicity of methanolic extracts from *Z. mauritiana* fruits. As a phytochemical profiling of fruits, methanolic extract reveals the presence of different phytochemicals. *Ziziphus* causes substantial cytotoxicity against cancer cells. The anticancer properties of *Z. mauritiana* seeds extract were tested in vitro against atypical cubical ranks (HL-60, Molt-4, HeLa, and normal cell line HGF) using MTT against Ehrlich ascites and carcinoma orientation Swiss albino mice. After 3 hours of incubation with the extract, agarose hardens electrophoresis and causes evident gene distraction in HL-60 cells. The extract has strong anti-cancer properties in vivo.
3. Antibacterial Activity: Methanol extracts of *Z. mauritiana* and *Ziziphus nummularia* were tested for antibacterial activity against *Staphylococcus aureus* and *Escherichia coli*. To assess antibacterial activity. The methanol extract of *Ziziphus* has moderate to good antibacterial activity. Methanol extracts of *Z. mauritiana* and *Z. nummularia* were tested for antibacterial activity against nine bacteria. The extracts were found to be effective against both gram-positive and gram-negative strains. The ethanolic extract of *Mauritia* leaves was tested for antibacterial activity against *E.coli*, *S. aureus*, *Streptococcus pyrogen*, *Aspergillus niger*, and *Candida albicans*. Results showed that *S. pyogenes* was the most vulnerable, followed by *E.coli*, and *S. aureus* was the least susceptible. *Ziziphus* extract effectively treats nosocomial infections, opportunistic urinary tract infections (UTI), and wound infections caused by specific pathogens.
4. Anti-Steroidogenic Activity: The ethyl acetate extract of *Z. mauritiana* bark was tested for anti-steroidogenic action in adult female mice. Extract inhibited the normal oestrus cycle of adult female mice during the oestrus stage and reduced ovarian wet stress. Mice treated with crude extract had dramatically raised cholesterol and ascorbic acid levels in their ovaries. The crude extract's antifertility activity was found to be reversible, with average estrus rotation and ovarian steroidogenesis resuming

following a 27-day withdrawal period.

5. **Immunomodulatory:** The aqueous ethanolic seed extract (100-400 mg/kg) of *Z. mauritiana* was tested for immunomodulatory action in mice. The sample was standardized using HPLC using betulinic acid as a marker.
6. **Anti-Diarrhoeal Activity:** The methanolic extract demonstrated antidiarrheal effects by inhibiting the spontaneous pendular pressure group of the rabbit jejunum and inhibiting acetylcholine-induced short form of the rat ileum. A Experiments with extracts at doses of 25 and 50 mg/kg prevented mice from experiencing diarrhea and fluid buildup caused by castor oil.
7. **Antioxidant Activity:** The methanol extract of *Z. mauritiana* was tested for antioxidant activity and its ability to scavenge DPPH radicals using a colorimetric technique. The radical-scavenging effect increases as the sample concentration increases.(1). The predicted IC₅₀ for the DPPH technique was 38.07 ug/mL.
8. **Positive Inotropic and Chronotropic:** The aqueous extract of *Z. mauritiana* has a beneficial inotropic and chronotropic impact on rat cardiac cells. Pretreatment of the heart with propranolol reduced these beneficial actions. *Z. mauritiana* contains limited adrenomimetic compounds that likely affect the rat heart via the β adrenoreceptor.
9. **Hepatoprotective:** The aqueous extract of *Z. mauritiana* fruit was tested for its ability to protect against CCL4-induced liver damage. Different groups of rats were given 250, 500 mg/kg fruit extract or 100 mg/kg silymarin (standard) before being given CCl₄. Liver histology confirmed these findings, indicating that fruit may have hepatoprotective properties.
10. **Hypotension:** In rabbits, extract *Z. mauritiana* at doses ranging from 0.4 to 122 mg/kg Pc causes dose-dependent hypotension similar to that produced by acetylcholine (ACh). Atropine dosages ranging from 4.10-3 to 4.84 μ g/kg PC prevent hypotension in rabbits produced by acetylcholine (ACh) at 4.10-3 and *Zizyphus mauritiana* at 22 mg/kg PC.
11. **Antiulcer Activity:** The methanolic extract of *Z. mauritiana* stem bark was tested for anti-ulcer activities. The study uses two models in mice: an ethanol-induced gastric ulcer model and an aspirin-induced gastric ulcer model. (14) .Methanolic extracts of *Z. mauritiana* (100, 250, and 500 mg/kg) reduce stomach lesions by 8%, 66.67%, and 82.67%, respectively.
12. **Anxiolytic Activity:** The ethanolic extract of *Z. mauritiana* leaves was tested for anxiolytic activity using elevated pulse maze, light and dark box paradigms, and neurotoxicity using Rota-rod device. The findings suggest that therapy with diazepam and *Z. mauritiana* extract. The extract does not cause neurotoxicity on Rota-rods. So, the extract of *Z. mauritiana* leaves has anxiolytic properties.
13. **Thrombolytic Activity:** The methanol extracts of *Z. mauritiana* exhibit thrombolytic action. The thrombolytic activity of the extract was assessed using the method developed by Dagainawala et al. (2006) and slightly modified by Kawsar et al. (2011), with streptokinase (SK) as the standard.
14. **Anti-Inflammatory Activity:** The methanolic extract of *Z. mauritiana* leaves shown anti-inflammatory properties in cotton pellet-granuloma in Wistar rats. The methanol extract of *Z. mauritiana* leaves exhibits dose-dependent inhibition of cotton pellets. The extract at the medication dose of 500mg/kg provided 31.1% protection against inflammation, compared to 16.9% at 250 mg/kg.
15. **Analgesic Activity:** The methanol extract of *Z. mauritiana* was tested for antinociceptive properties using the tail-flicking method. In this procedure, the reaction time of rats and animals to radiant heat was measured by placing the tip (last 1-2 cm) of their tails on the heat source. The extract moderately elegants the reaction time in a dose-dependent way.
16. **Nootropic Activity:** After 24 hours, the N-butanolic fraction of the methanolic extract of *Z. mauritiana* leaves reduces transfer latency and increases step down latency in the elevated plus maze and passive avoidance paradigms, as well as increasing the recognition index in the object recognition test. Piracetam is utilized as a reference standard.
17. **Antifungal Activity:** Methanol extracts of *Cassia occidentalis* Linn., *C. singuena* (Del.) Lack, *C. tora*

Linn., *Detarium microcarpum* Guill. & Perr., *Ziziphus abyssinica* (Hochst ex A. Rich) Fiori, *Z. mauritiana* Lam., *Z. mucronata* Willd., and *Z. spina-christi* Willd. found in Bauchi State, Nigeria, demonstrated antifungal activity against dermatophytes (*Trichophyton rubrum*, *T. mentagaphy*).

18. **Anti-tumor Activity:** *Tinospora cordifolia* was the most effective, followed by *Ziziphus mauritiana*. ZM contains biologically active compounds, including triterpenes, cyclopeptide alkaloids, and flavonoids, which have been shown to inhibit histamine release, COX-1&2, choline acetyl transeferase activation, cytotoxic activity, and immunological adjuvant activity. ZM, as a component of the -saiko-to (TJ-9), a Kampo herbal formula, shown chemopreventive potential in a large series of patients with cirrhosis of the liver, preventing liver cancer and increasing the activity of natural killer cells, thereby qualifying as an immunopotentiator. ZM has low toxicity when administered orally in mice and rats. A single dose of 50g/kg-bw caused no toxic symptoms, whereas a daily dose of 20g/kg-bw for 30 days did not cause hazardous effects. There were no side effects noted.

Pharmaceutical Importance:

Plants provide natural remedies for chronic ailments. Herbal medications and their formulations are expected to contribute to over 60% of clinical drug development globally. WHO reports that 80% of the world's population relies on plant-derived medications. Similarly, *Z. mauritiana* has gained recognition for its ability to treat several disorders. Its leaves can treat tuberculosis and other blood-related disorders. The juice of the leaves, along with buffalo milk, is said to be a good treatment for small pox. The paste made from its leaves is applied to wounds to relieve burning feelings.

Traditionally, patients are given a blend of fresh *Z. mauritiana* leaves and cumin to cure urinary tract infections. Additionally, the root of this plant is used with cow's milk to treat diarrhea. Conventional therapists recommend keeping a fresh root of *Z. mauritiana* in the mouth to treat hoarseness in the throat. Almost all parts of this plant have potential to treat various ailments. The roots and stems are traditionally used to cure dysentery and diarrhea. This plant's root bark has anti-inflammatory, anti-allergic, and analgesic properties. *Z. mauritiana* can effectively cure pregnancy-related symptoms such nausea, vomiting, and abdominal pain. *Z. mauritiana* leaves help treat various diseases, including asthma, fever, and liver disorders. Experiments have shown that extracts from *Z. mauritiana* have considerable promise for treating cancer, inflammation, and diabetes.

Z. mauritiana has traditionally been used for culinary, medicinal, health maintenance, and digestive improvement. Some of the medical characteristics of this plant have been identified as antibacterial, antioxidant, and anti-inflammatory.

CONCLUSION:

In conclusion, the evaluation of *Ziziphus mauritiana* emphasizes its various and multidimensional therapeutic characteristics, demonstrating its potential as a useful resource in both traditional and modern medicine. A detailed investigation of its phytochemical composition and pharmacological activities reveals that *Z. mauritiana* has great medicinal potential in a variety of health disorders. This plant offers significant prospects for future pharmaceutical and nutraceutical research, with antioxidant and anti-inflammatory benefits as well as anti-diabetic, hepatoprotective, and antibacterial characteristics. However, more research is needed to understand its mechanisms of action, improve dosing regimens, and investigate its possible synergistic effects with other therapeutics. Overall, *Z. mauritiana* stands out as a promising botanical candidate for the development of innovative therapeutic approaches, with the potential to address a wide range of health issues.

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