A Review of *Jatropha multifida* Linn.

Carla W. Sabandar

**Abstract**

*Jatropha multifida* Linn. belongs to the family Euphorbiaceae is a shrubs or treelets commonly known as coral plant or French physic nut and is cultivated as an ornamental plant. All parts have medicinal properties in traditional folklore. Chemical investigation has been carried out compounds mainly terpenoids, alkaloid peptides, phloroglucinols and cyanoglucoside. Some biological activities of extracts and pure compounds of this plant also reported.

**Keyword**: Euphorbiaceae, *J. multifida* Linn, medicinal properties, phytochemistry, pharmacology

**Introduction**

*Jatropha multifida* Linn. (Synonym: *Adenoropium multifidum* (L.) Pohl and *J. janipha* Blanco) belong to the family Euphorbiaceae (Padua *et al*., 1999), origin uncertain but probably in digenous to Barbados. A very attractive and widely cultivated species throughout the tropics and is commonly known as coral plant or French physic nut (Dehgan, 1982).

Shrubs or treelets, 2-3(-6) m tall, stems glabrous. Stipules divided into forked setiform; to 2 cm, petiole 10-25 cm, leaf blade orbicular in outline, 10-30 cm wide, green adaxially, gray-green abaxially, glabrous on both surfaces, margin palmately 9-11 lobed, lobes entire, venation pinnate. Inflorescences terminal peduncle 13-20 cm, pedicles short, flowers dense. Male flowers: calyx 2-3 mm, lobes 5, rotund, glabrous; sepals 5, spatulate, red, ca. 4 mm; stamens 8; filaments connate at base; anthers elongate. Female flowers: calyx as in male; sepals 6-7 mm, red; ovary glabrous; styles 3, connate in lower 1/2. Capsules ellipsoidal to obovate, ca. 3 cm, glabrous (Shu *et al*., 2008). *J. multifida* Linn. is grown as an ornamental plant in north Australia and South east Africa (Nayak and Patel, 2009), likewise in Philippines, Srilanka and Indonesia, especially in Java and Sulawesi Islands.

**Medicinal Properties**

All parts of this plant, but particularly the seeds, are reported to have strong purgative properties. The foliage smells like insect repellent and have never seen this plant attacked by insects, although personal communication reports occasional attacks by mites (Dehgan, 1982). The fruits are punget, heating and purgative: useful in piles, wounds, enlarged spleen and skin diseases. The seeds are sweetish, oleaginous; purgavive, aphrodisiac, tonic, causes "Kapah", "Vata", and "Pitta", vomiting and burning sensation. The seeds are regarded as a powerful purgative in Cambodia (Kirtikar and Basu, 1981). A case was reported from Srilanka that child spontaneously vomited several times and became drowsy after ingesting the seed of the Kapum Kiriya (*J. multifida* Linn.) plant which was growing near the fence (Guruge *et al*., 2007). The toxic element is a toxalbumin named jatrophone which causes agglutination and haemolysis of red cells and is also injurious to other cells (Lucas and De Silva, 2006). The leaves and latex of *J. multifida* Linn. are used medicinally. The leaves are used in scabies: the latex is applied over wounds and ulcer and the oil is used both internally and externally as abortifacient (Kirtikar and Basu, 1981). The bark and leaves are used as medicine for neurodermatitis, itchy skin and skin eczema (Shu *et al*., 2008). The stems were employed as...
chewing sticks used for dental care in Ekiti state, Nigeria (Kayode and Omotoyinbo, 2008).

**Phytochemistry**

Chemical investigation has been carried out on *J. multifida* Linn. and chemical compound mainly terpenoids, alkaloid peptides, phloroglucinols and cyanoglucoside have been isolated. The diterpenoid, multidione (Das *et al*., 2009a) was isolated from the stems of *J. multifida* Linn. The compound possesses a phenolic moiety and a long side chain, structurally similar to the B ring of other lathyrane-diterpenoids in seco-form.

[Image: Multidione]

Multidione (Das *et al*., 2009b), a novel cytotoxic lathyrane-type diterpene having six-membered A ring from *J. multifida* Linn. was determined from detailed analysis of 1D and 2D NMR spectra and X-ray crystallographic analysis.

[Image: Multifidone]

Multifidone (4E)-jatrogrossidentadione acetate was isolated from the stem (Das *et al*., 2010).

[Image: 15-epi-(4E)-Jatrogrossidentadione acetate]

Cyclic peptides have been isolated from the latex were labaditin and biobollein (Kosasi *et al*., 1989a; Labadie, 1993).

[Image: Labaditin]

[Image: Biobollein]

The acylphloroglucinols are multifidol and multifidol glucoside (Kosasi *et al*., 1989b) were identified as (2-methylbutyryl)phloroglucinol and 1-[(2-methylbutyryl)phloroglucinyl-β-D-glucopyranoside have been isolated from the latex of *J. multifida* Linn.

[Image: Multifidol (R=H) Multifidol glucoside (R=Glucosyl)]
The non-cyanogenic cyanoglucoside, 1-cyano-3-β-D-glucopyranosyloxy-(Z)-1-methyl-1-propene named multifidin A (Van den Berg et al., 1995) was isolated from the latex of this plant.

![Multifidin A](image)

**Pharmacology**

**Antibacterial** - Aiyelaagbe (2001) reported antibacterial activity of hexane, ethyl acetate, chloroform and methanolic extracts of the roots of *J. multifida* Linn. against *Bacillus subtilis* and *Staphylococcus aureus*. Labaditin has shown antibacterial against a Gram-positive bacteria, *Streptococcus mutans*, but no effect against Gram-negative bacteria (Barbosa et al., 2010).

**Immunomodulator** - Labaditin, a cyclic decapeptide and biobollein, a cyclic nonapeptide were isolated from the latex of *J. multifida* on the basis of immunomodulatory activity-guided purification and both peptides selectively inhibited the classical pathway of human complement activation (Kosasi et al., 1989a; Labadie, 1993).

**Anticancer** - Multifidone isolated from the stems was measured on four different cancerous cell lines (Das et al., 2009b).

**References**


Revised Review by Carla W. Sabandar, Kendari, Sulawesi Tenggara, Indonesia—2010. carlasabanar.wordpress.com

Corresponding author: cw.sabandar@yahoo.com.