

A review on Ethno-Botany, Pharmacology and Phytochemistry of *Cleome viscosa* Linn. (Cleomaceae)

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Abstract - *Cleome viscosa* Linn. (CLEOMACEAE) is a wild, sticky herb, commonly called “dog mustard”. Traditionally this plant possesses beneficial effects as an antiscorbutic, anthelmintic, antiseptic, febrifuge and cardiac stimulant. A wide variety of phytoprinciples have been isolated from its root, leaves and seeds.

Keywords - *Cleome viscosa*, phytoprinciples, traditional uses.

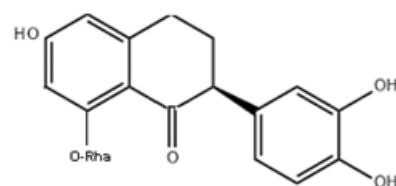
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INTRODUCTION

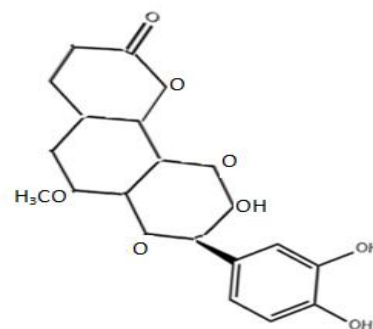
Cleome viscosa Linn. (CLEOMACEAE) is distributed throughout the plain of India, mostly on the edges of orchards and follow fields. (Nadkarni, 1982). The stem gets clothed with glandular and simple hairs. The plant is popular remedy for a variety of ailments as documented in ethno-botanical surveys and traditional systems of medicine, such as Ayurveda and Unani (Chatterjee and Prakash, 1981). The present review is a comprehensive account of the traditional uses and ethno-botanical, phytochemical and pharmacological investigations carried out on this plant.

- **Uses described in traditional medicine:** The indigenous knowledge of many traditional communities has been documented as Ayurveda, Siddha, Unani and other systems outside India. In the Ayurveda, *Cleome viscosa* is considered to possess cooling, stomachic, laxative, diuretic and anthelmintic properties (Anonymous, 1978). It is reported to be useful in the treatment of malarial fevers, skin diseases, lprosy, blood diseases and uterine problems (Kirtikar and Basu, 1984). It is also documented to remove “kapha” (phlegm) and to cure earache (Anonymous, 2001).
- **Uses ascribed in folkloric medicine:** The leaves are used for the treatment of boils (Maheshwari, 1989), earache (Singh, 1945; Shah, 1984), headache (Ramchandran and Nair, 1981), ulcers (Rajwar, 1983) and wounds (Bedi, 1978). The seeds are documented to be used in the treatment of helminthic infections, convulsions, fever and diarrhoea (Singh, 1945, Shah et al., 1983, Malhotra and Moorthy, 1973).

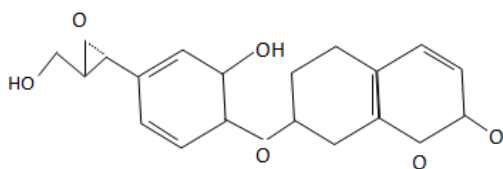
- **Chemical constituents:** The structures of prime chemical constituents are shown in figure-1. Gupta and Dutt (1938) reported two chemical constituents i.e viscocic and viscosin from the seeds. Cleosandrin and cleomiscosin have been also isolated from its seed by Ray et al. (1980) and Ramchandran, (1979). A new glycoside called eriodictyol-5-rhamnoside was isolated from entire plant of *Cleome viscosa* by Srivastava and Srivastava (1979)



Eriodictyol-5-rhamnoside



Cleomiscosin



Cleosandrin

Figure 1: Showing chemical structure

- Pharmacological activities:** *Cleome viscosa* has been screened for various pharmacological activities and found to possess significant activities as analgesic, antimicrobial, antidiarrhoeal and hepatoprotective activities. The various pharmacological activities reported for this plant are given in table-2 below :

Table 2

Activities	Parts of Plant used	References
Analgesic	Entire Plant	Parimala Devi et al., 2003
Antimicrobial	Leaves	Sudhakar et al., 2006; Williams et al., 2003.
Antidiarrhoeal	Entire plant	Devi et al., 2002.
Hepatoprotective	Seeds	Sengottuvelu et al., 2007

Analgesic activity:

The methanolic extract of entire plants of *Cleome viscosa* was evaluated. The result of the study showed significant activity of the extract at the higher concentration of 400 mg/ml as compared to diclofenac sodium (Parimaladevi, et al., 2003).

Antimicrobial activity:

Sudhakar et al. (2006) have tested the ethnoc extract of *Cleome viscosa* leaves for antimicrobial activity. The extract exhibited antimicrobial activity particularly significant against *E. Coli* and *Proteus vulgaris*. In another study, Williams et al., 2003 evaluated the hexane extracts its leave for antibacterial activity. The existing extract was potent antibacterial agent. Samy et al., (1999) evaluated the aqueous extract of its aerial part at the concentrations of 30 and 40 mg/ml for antimicrobial activity and the results showed maximum inhibition against *Aeromonas hydrophila* and *Bacillus cereus*.

Antidiarrhoeal activity:

A study was undertaken to evaluate the effect of the methanolic extract of its entire plant for antidiarrhoeal potential against experimented model of diarrhea in rats. Methanolic extract showed significant inhibition against castor oil induced diarrhoea (Devi et al., 2002).

Hepatoprotective activity:

A study was conducted to evaluate the hepatoprotective potential of the aqueous seed extract of *Cleome viscosa* against carbon tetrachloride (CCl₄)-induced liver damage in rats. The extract (200ml/kg) was administered orally to the animal with hepatotoxicity induced by CCl₄ and silymarin (200ml/kg) as standard. The extract treated rats showed a significant reductions in serum enzyme aspartate aminotransferase (Sengottuvelu et al., 2007).

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