

## To review on the *Cryptostegia grandiflora* .

Author name - Dangare Mahesh Padmakar  
Chavan Ankita Nanasaheb  
Choudhri Chaitali Bhausahab  
Prof. Dhananjay landge

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### ABSTRACT

To evaluate analgesic property of leaf methanol extract of *Cryptostegia grandiflora* .Methods Analgesic activity was evaluated by abdominal writhing and tail flick methods using Swiss albino mice. Acetyl salicylic acid was used as standard drugs .

### I. INTRODUCTION

*Cryptostegia grandiflora*, commonly also known as rubber vine is a woody-perennial vine that is native to south-west Madagascar. It is also a significant weed in northern Australia, sometimes regarded as the worst weed in all of Australia. It has also been introduced to most other tropical and subtropical regions by man, because of its attractive flowers and the fact that its latex contains commercial quality rubber.'

### Photos of the *cryptostegia grandiflora*



### Botany of

*Cryptostegia grandiflora* is a stout, (woody vine) . Leaves are oblong-ovate to elliptic-ovate, 6 to 10 centimeters long, pointed at the tip, rounded

at the base. Cymes are short. Sepals are green, about 8 millimeters long. Corolla is pale purple, about 4 centimeters long, and often wider than it is

long. Woody follicles are 10 to 12 centimeters long .

#### Scientific classificationedit

- 1) Kingdom: Plantae
- 2) Clade: Tracheophytes
- 3) Clade: Angiosperms
- 4) Clade: Eudicots
- 5) Clade: Asterids
- 6) Order: Gentianales
- 7) Family: Apocynaceae
- 8) Genus: Cryptostegia
- 9) Species: *C. grandiflora*

#### Habitat

A weed of semi-arid, tropical and subtropical environments. open woodlands, grasslands, closed forests, forest margins, pastures, roadsides, disturbed sites and waste areas. It prefers sites with ample moisture and low shrubs or trees to support its climbing stems..

A robust woody vine or shrub with greyish-brown stems covered with small warty spots.

its stems and leaves contain a milky sap.

its paired leaves are thick and leathery with glossy dark green upper surfaces and slightly paler and duller undersides.

its showy pale pink to whitish flowers (4-6 cm long and 5-9 cm wide) are tubular with a darker throat and five petal lobes.

its fruit (10-15 cm long and 2-4.5 cm wide) are produced in divergent pairs and contain numerous seeds topped with a silky tuft of white hairs.

#### Stems and Leaves

These stems are greyish-brown in colour with warty spots and contain a milky sap . Younger branches are greenish in colour and hairless There are two different types of stems produced, branched stems with many leaves (up to 2 m long), and longer unbranched stems whip stem 3-8 m long that either find a support or fall to the ground under their weight and produce leafy side-branches.

The thick and leathery leaves are oppositely arranged along the stems, with dark green and glossy upper surfaces and slightly paler

and duller undersides. These leaves are always hairless (i.e. glabrous) and they are borne on stalks (i.e. petioles) 5-20 mm long that are often reddish-purple in colour. The leaf blades (3-10 cm long and 2-6 cm wide) are egg-shaped in outline (i.e. ovate) or oblong and have a broadly wedged (i.e. cuneate) base and blunt or pointed tips (i.e. acute or obtuse apices). Leaf margins are entire or sometimes slightly wavy .

#### Flowers and Fruit

The purplish-pink to whitish coloured flowers are large and showy (4-6 cm long ) They are funnel-shaped & vhave five broad petals that are partially fused . These flowers are borne on short thick stalks ( 4-8 mm long ) and occur in small clusters ( 6-12 flowers) at the ends of the branches. They also have five relatively narrow sepals (12-19 mm long and 5-10 mm wide), that are joined only at the base, and five stamens. Flowering occurs mainly during summer.

The fruit resemble pods, they are actually 'follicles', and are produced in divergent pairs. These fruit (10-15 cm long and 2-4.5 cm wide) are greenish or brownish coloured, somewhat three-angled in cross-section, and contain numerous (200-450) seeds. The seeds are brown, flattened and egg-shaped in outline. They are topped with a silky tuft of white hairs

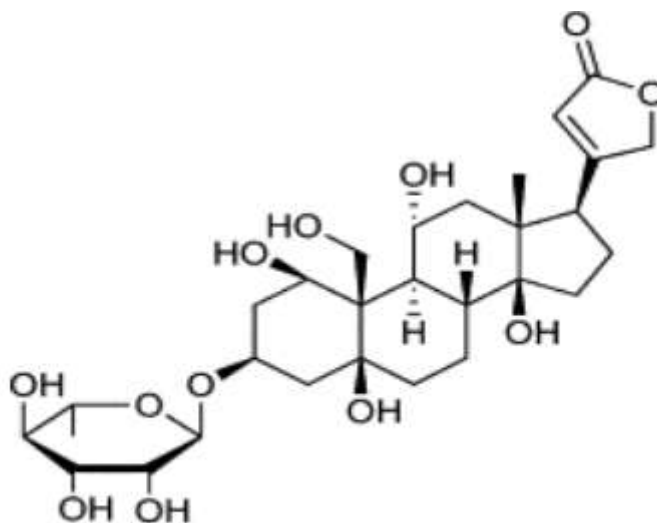
#### Where is it found?

Rubber vine has been found at several properties in north west .Plants were found growing around homesteads and sheds, and are under an eradication program.

Rubber vine is also native to southwestern Madagascar. It now grows throughout East Africa, Southeast Asia, the United States and Central and Southern America.

It was planted is northern Queensland mining town gardens. By 1917 there were reports of infestations. During the Second World War . it was cultivated as a potential source of rubber. It has spread through many parts of Queensland including the south of Cape York, Gulf of Carpentaria, along the coast south to Bundaberg and as far west as the Northern Territory border.

## Structure



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## Pharmacological Activity

### 1) Anti-inflammatory activity

It is also known in Colombian Caribbean coast and rubber vine in English speaking countries, is a perennial woody shrub widely distributed in Madagascar, India, South Florida and tropical regions. Due to its high latex content, *Cryptostegia grandiflora* is employed in the manufacture of rubber and as a source of hydrocarbon fuels the interest in this plant is not restricted to its industrial applications, but rather to its usages in folk medicine as hypoglycemic, coagulant, antibacterial, anti-inflammatory, anti-asthmatic and for the treatment of nervous disorders, representing a promissory source of bioactive secondary metabolites. Several research groups have corroborated many of the biological activities mentioned above. How, to our knowledge, this is the first report of the anti-inflammatory activity of *Cryptostegia grandiflora* leaves.

### Anti-oxidant activity

*Cryptostegia grandiflora* fractions, showed a potent scavenging effect of DPPH and ABTS free radicals, in a concentration-dependent manner, with IC<sub>50</sub> values lower than 550 and 101 µg/mL, respectively (Table 3). Even though these fractions did not present comparable activity to that presented by ascorbic acid, used as reference control. they constitute a promissory source to isolate bioactive compounds with antioxidant properties, as these complex fractions are constituted by an elevated number of compounds.

### Antioxidant

Study evaluated the antiproliferative and antioxidant activity of *C. grandiflora* leaves. Results showed antioxidant activity which also may be attributed to the significant amount of the catecholamine like phenol molecules in the leaves extract. These extract also showed antiproliferative activity against colorectal adenocarcinoma cell line at a concentration of CTC<sub>50</sub> 750 µg/mL (75.7%).

### Antimicrobial

Study isolated compounds from hexane and ethyl acetate extracts isolated a mixtures of phytosterols and triterpenoids. Lanosterol, a triterpenoid, it was most active against *E. coli* and campesterol had greater activity against *Candida albicans*.

## II. CONCLUSIONS

The study of demonstrated the anti-inflammatory activity of the extract and primary fractions obtained from the leaves of *Cryptostegia grandiflora*, which appears to be the first report establishing this biological activity and supporting the folk use of this plant in the Colombian Caribbean region. The promissory results obtained in this work constitutes the basis for further studies aiming to isolate, purify and characterize the bioactive anti-inflammatory compounds from *Cryptostegia grandiflora* and get new insights into the related molecular mechanisms.

### REFERENCE

- [1]. Mukherjee PK, Sahu M, Suresh B. Indian Herbal Medicines. The Eastern Pharmacist 1998;XLI(490):21-3.
- [2]. Sastri MS. Herbal Drugs, The Eastern Pharmacist 1993;49-93.
- [3]. McMahon, T.A. and Finlayson, B.L.; Global Runoff: Continental Comparisons of Annual Flows and Peak Discharges; published 1992 by Catena Verlag. ISBN 3-923381-27-1.
- [4]. Rubber vine: *Cryptostegia grandiflora* / Atlasing in Namibia: Biodiversity Monitoring in Namibia.
- [5]. Phytochemical Study of Flowers and Latex Of *Cryptostegia Grandiflora* R.Br. Cultivated In Egypt / S. M. El Zalabani, E. A. Abdel Sattar, F. I. Fathy and N. G. Shehab.
- [6]. *Cryptostegia grandiflora* A potential multi-use crop / G D P S Augustus, M Jayabalan, G J Seller / Industrial Crops and Products, January 2000; 11(1): pp 59-62.
- [7]. Ethno-Medico-Botanical Studies From Rayalaseema Region Of Southern Eastern Ghats, Andhra Pradesh, India / Dowlathabad Muralidhara Rao, U.V.U.Bhaskara Rao, and G.Sudharshanam / Ethnobotanical Leaflets, 2006; 10: pp 198-207.
- [8]. *Cryptostegia grandiflora* Toxicity Manifesting as Hyperkalemia, Complete Heart Block and Thrombocytopenia / Shashikala A Sangle, Sonali Inamdar, Vikrant Deshmukh / Journal of The Association of Physicians of India, May 2015; Vol 63
- [9]. Beware of the Madagascar Rubber vine (*Cryptostegia grandiflora*) / Luise Hoffmann / Namibian: Weekender Youth Papaer / Environment, 29 June 2017.
- [10]. Ethnomedicinal plants used by tribals of East Nimar region, Madhya Pradesh / Sudip Ray\*, M Sheikh1 & S Mishra / Indian Journal of Traditional Knowledge Vol. 10 (2), April 2011, pp. 367-371.
- [11]. Ethno-Medico-Botanical Studies From Rayalaseema Region Of Southern Eastern Ghats, Andhra Pradesh, India / Dowlathabad Muralidhara Rao, U.V.U.Bhaskara Rao, and G.Sudharshanam / Ethnobotanical Leaflets, 2006; 10: pp 198-207.
- [12]. Traditional medicinal plants of Nigeria: an overview / Monier M. Abd El-Ghani / Agriculture And Biology Journal Of North America / doi:10.5251/abjna.2016.7.5.220.247.
- [13]. Estimation of phytoconstituents from *Cryptostegia grandiflora* (Roxb.) R. Br. in vivo and in vitro. II. Antimicrobial screening / Bharat Singh, Ram Avtar Sharma, Govind Kr. Vyas and Pallavi Sharma / Journal of Medicinal Plants Research, 4 May 2011; 5(9): pp 1598-1605.
- [14]. Integrating local pastoral knowledge, participatory mapping, and species distribution modeling for risk assessment of invasive rubber vine (*Cryptostegia grandiflora*) in Ethiopia's Afar region / Luizza, M. W., T. Wakie, P. H. Evangelista, and C. S. Jarnevich / Ecology and Societ, 2016; 21(1) Cite this article as : Nitin N. Mali, Dr. Yadav Reenu, Dr. Sawale Jyotiram, Dr. Gauttam Vinod, "On Review - Brief *Cryptostegia Grandiflora* Linn Roxb", International Journal of Scientific Research in Science and Technology (IJSRST), Online ISSN : 2395-602X, Print ISSN : 2395-6011, Volume 9 Issue 4, pp. 110-114, July-August 2022. Available at doi : <https://doi.org/10.32628/IJSRST229413>