In India, family Bignoniaceae is represented by 21 genera and about 25 species including the non indigenous ornamental plants. The genera of *Tecomella* are a monotypic genus shrub/tree of the arid zone region in India. The natural stands of *Tecomella undulata* are restricted to the western parts and a few to southeastern parts of Pakistan. The species has been identified as an important for environmental conservation in arid zones as a stabilizer of shifting sand dunes, providing shelter for wildlife. It is also a very useful species for afforestation of the drier tracts due to its drought and fire resistant properties (1). It occurs on flat and undulating areas including gentle hill slopes and some times also ravines and thrives very well on stabilized sand dunes, which experience extreme low and high temperatures. It plays an important role in ecology; it acts as a soil binding tree by spreading a network of lateral root on the tops surface of the soil. It acts as a windbreak and helps in stabilizing shifting sand dune. The tree is propagated from seeds and cutting and succeeds well in drained fibrous land (2). It is a common agroforestry tree species in the Thar Desert of Rajasthan for its higher survival rates even in extreme drought conditions (3). It has significant anticancer, hepatoprotective (4), analgesic (5) and antibacterial activity (6, 7). The bark contains tecomine, β-sitosterols, chromones glycosides, undulatosides, tecomellosides, tecosides lapachol, veratric acid etc. (8–10).

**HABITAT**

The species of *Tecomella undulata* is restricted to the drier parts of the Arabia, southern Pakistan and northwest India. In India, it occurs mainly in Maharashtra, Gujarat, Rajasthan, Punjab and Haryana (11).

**VERNACULAR NAME**

Baluchistan: Rori; Bolan: Parpuk; Bombay: Lohera, Lohuri, Rakhtreora, Rugtrora, Roira; Hindi: Rugtrora, Lasbala: Lahira; Marathi: Rakhtroda, Raktarohida, Marara: Rohira, Roira; Punjab: Lahura, Luar, Rohira, Roir; Pushtu: Raidawan, Rebdan, Rebduin; Sanskrit: Chalachhada, Kushalmali, Kutashalmali; Sind: Khin, Lahero, Lohuri (11).

**SYNONYMS**: *Tecoma undulata* G. Don, *Bignonia undulata* Sm.

**TRADE NAME**: Rohida tree, Desert teak, Marwar teak.

**SCIENTIFIC CLASSIFICATION**


**DESCRIPTION**

A shrub or small tree with drooping branches. Leaves are simple, 1–3.2 cm long, narrowly oblong, obtuse, entire with undulate margins. Flowers are inodorous, in corymbose few flowered racemes terminating short lateral branches, pedicles 6–13 mm long, calyx 9.5–11 mm long, campanulate, lobes 3 mm long broadly ovate, obtuse and mucronate. Corolla 3.8–6.3 cm long, orange yellow, campanulate, lobes 5, subequal and rounded. Stamens exerted, filaments glabrous, stigma 2-lamellate, lobes spathulate-oblong and rounded. Capsules 20 by 1 cm slightly curved, linear-oblong, acute, smooth; valves thin. Seeds (including the wing) 2.5 by 1 cm,
wing very narrow round the apex of the seed, absent at its base (13).

MACROSCOPICAL EXAMINATION OF BARK (13)


PHYTOCHEMISTRY

Different chemical constituents such as radermachol, undulatin, lapachol, tecomelloside, stigmasterol, \( \beta \)-amyrin, \( \beta \)-sitosterol, \( \beta \)-sitosteryl acetate, campasterol and many others have been isolated from the plant. A new glycoside tecomin is isolated from the bark of the plant. Lapachol, veratric acid, dehydrotecol, \( \beta \)-sitosterol, a wax alcohol ferulate, \( \alpha \)-tri- contanol and tecomelloside is isolated from heartwood and bark. Rutin, quercetin, luteolin-7-glycoside and \( \beta \)-sitosterol were isolated from flowers of the plant. A new iridoid glycoside-6-O-veratryl-catalpoloside-\( \alpha \)-lapachone was isolated from roots (14).

T. undulata leaves have oleanolic acid, ursolic acid, betulinic acid, triacontanol, cirsimaritin, cirilinol, pentariacontanol and 4,5-dihydroxy-3,6,8-trimethoxyflavones (15, 16). Structures of some of the compounds mentioned are shown in Figure 1.

The seed oil contains 7.14% tannin and seed oil contains linoleic acid (53%) along with lauric acid. The kernels yield 44.5% of fatty oil (17).

PHYTOCHEMICAL INVESTIGATIONS

Extractive values of extracts are presented in Table 1 (18).

MEDICINAL USES

The plant is also useful in urinary discharges due to “kapha”, “pitta”, enlargement of the spleen, leucorrhoea, leucoderma (Ayurveda). The bark of the young branches is often employed in Sind as a remedy for syphilis (Murray). Bark possesses mild relaxant, cardiotonic and choleretic activities. The plants extract possesses anticancer, hepatoprotective, analgesic, antibacterial, antifungal and anti termite activities. Tecomella undulata is also used in the treatment of typhoid fever, diabetes, syphilis and eczema (19, 20).

PHARMACOLOGICAL PROFILE

The various pharmacological activities reported are given below as:

Hepatoprotective activity

Ethanol extract of stem of Tecomella undulata has hepatoprotective activity. Oral administration of T. undulata at 100 mg/kg resulted in significant reduction in serum aspartate aminotransaminase (35% and 31%), alanine aminotransaminase (50% and 42%), gamma glutamyl traspeptidase (56% and 49%), alkaline phosphate (46% and 37%), total bilirubin (61% and 48%) and liver MDA level. Significant improvement in liver glutathione when compared with thioacetamide damaged rats was also observed (4).

Analgesic activity

The methanolic extracts of Tecomella undulata exhibits analgesic activity. Using the hot water tail immersion test in mice, the extract was tested for their oral analgesic (5).

Antibacterial activity

The methanolic extracts of Tecomella undulata exhibits antibacterial activity. Tecomella undulata (Sm.) methanolic extracts inhibited S. epidermidis and B. subtilis. The plant extracts possess antibacterial properties that can be used as antimicrobial agents in new drugs for the therapy of infectious diseases caused by pathogens (7). Both aqueous and alcoholic leaf and stem extract of

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Yield (w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
<td>0.16</td>
</tr>
<tr>
<td>Petroleum ether</td>
<td>10.03</td>
</tr>
<tr>
<td>Chloroform</td>
<td>1.80</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>16.92</td>
</tr>
<tr>
<td>Methanol</td>
<td>18.57</td>
</tr>
<tr>
<td>Water</td>
<td>8.85</td>
</tr>
</tbody>
</table>

Table 1. Extractive values of extracts of Tecomella undulata.
An overview for various aspects of multifaceted health care *Tecomella undulata* Seem. plant

T. undulata showed growth inhibitor of *Salmonella typhi*, a causal organism of typhoid fever (6).

**Anti HIV activity**

*Tecomella undulata* leaves have oleanolic acid, ursolic acid and betulinic acid compound that have strong HIV inhibitors. Octadimethyl succinate derivatives of oleanolic acid and betulinic acid have been reported to have 24 times more active than AZT (a drug currently used in AIDs) (15).

**Antifungal and anti termite activity**

The stem extracts of *Tecomella undulata* have antifungal and anti termite action. The heart wood of *Tecomella undulata* contains lapachol, which has antifungal and anti termite properties (15).

**Smooth muscle relaxant activity**

Water soluble portion of alcoholic as well as the chloroform extracts of the bark of *Tecomella undulata* has smooth muscle relaxant activity. Dosage – Flower, bark 50–100 mL decoction (17).

**Cardiotonic and chloretic activity**

Alcoholic and chloroform extracts of bark of *Tecomella undulata* have cardiotonic and chloretic activity. The extracts of *Tecomella undulata* increase the bile flow (17).

**Immunomodulatory activity**

Oral administration of the ethanolic extract of bark of *Tecomella undulata*, at the doses of 100 mg/kg in mice, dose-dependently potentiated the delayed-type hypersensitivity reaction induced by sheep red blood cells (SRBC). To evaluate the effect of *Tecomella undulata* on humoral response, its influence was tested on sheep erythrocyte specific heme agglutination antibody titre in mice. Cyclophosphamide at a dose of 50 mg/kg, *p.o.*,...
showed significant inhibition in antibody titre response, while ethanolic extract of *Tecomella undulata* was found to significantly enhance the production of circulating antibody titre (22).

**Safety profile**

No adverse effects in recommended doses (5).

**AYURVEDIC FORMULATIONS**

Rohitakarista, Rohitakyadi churna, Livonil Syrup (20)

**CONCLUDING REMARKS**

Thus with the matter collected in this article, it is concluded that the plant have a lot of medicinal and pharmacological uses. The plant can be get from the market in various forms with cheaper prices. So, with the help of the natural herb, we can take benefit of that in the stressful life nowadays. The scientific work clinically, for various other pharmacological interrelated activities, can be done in the future. So the interrelated help regarding the future work can be obtained from the article.

**REFERENCES**


Received: 03.06.2011