

REGULAR ARTICLE

In vitro antimicrobial activity of *Cassia tora* L. stem

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ABSTRACT

Ethanolic and aqueous extracts from the stem of *Cassia tora* were investigated for their antibacterial activity. Their concentrations 0.10mg, 0.25 mg ethanolic and aqueous extracts respectively were studied in activity, which involved the determination of inhibition zone in mm. Both the extracts exhibited significant antibacterial activity. Streptomycin used as standard reference. The antibacterial activity of ethanolic and aqueous extracts of *Cassia tora* has therefore been demonstrated for the first time.

Introduction

Cassia tora (Leguminosae) is a wild crop and grows in most parts of India as a weed. According to Ayurveda the leaves and seeds are acrid, laxative, antiperiodic, anthelmintic, ophthalmic, liver tonic, cardiogenic and expectorant (Ahmad et al., 1998). The leaves and seeds are useful in leprosy, ringworm, cough, bronchitis, cardiac disorders (Chan and Peria, 2001). Component of *Cassia tora* are mutagenic and antioxidant activities has anthraquinones, chrysophanol, emodin, obtusifolin, obtusin, chryso-obtusin, aurantio-obtusin, and their glycosides. Naphthopyrones, rubrofusarin, norrubro fusarin, rubrofusaring, entiobioside. Toralactone, torachryson. Roots contains 1, 3, 5-trihydroxy-6-7-dimethoxy-2-methylanthroquinone and beta-sitosterol. While seeds contains naphtho-alpha-pyrone-toralactone, chrysophanol, physcion, emodin, rubrofusarin, chrysophanic acid-9-anthrone.

Materials and Methods

Cassia tora stem were collected from local area of Parbhani district (M.S.). The taxonomical identification of plant was done by local flora and BSI Pune. Dried stem at room temperature and 10gm powdered stem were successively defatted with petroleum ether (40-60^o). Defatted residue was extracted

with ethanol. Aqueous extract of this plant was prepared by Soxhlet apparatus. Extract was evaporated on water bath to give dried residues. Ethanolic and aqueous extracts from the stem of *Cassia tora* were investigated for their antibacterial activity against *Pseudomonas aeruginosa*, *Lactobacillus Salmonala typhi*, *P.vulgaris*, *Bacillus subtilis*, *Staphylococcus aureus*, *pneumoniae*, *E. coli*, *Enterobacter* bacterias. The filter paper disc method was performed using nutrient broth media (Somchit et al., 2003 and Villavicencio and Perez-Escandon, 1992). These agar media were inoculated with 0.5 mL of the 24 h liquid cultures containing 10 microorganisms / ml. Filter paper discs (3 mm diameter) saturated with solutions of each compound was placed on the indicated agar medium. The incubation time was 24 h at 37 ± 2°C. Standard discs of ciprofloxacin of 5µg/ml were used. Zone of inhibition was observed by zone reader scale. The tests were repeated to confirm the findings and the average of the readings was taken into consideration.

Result and Discussion

Preliminary phytochemical screening of alcoholic extract revealed the presence of anthraquinone glycosides, phenolic compounds; saponin glycoside and while aqueous extract showed presence of glycosides and phenolic compounds, saponin glycoside.

Table1. *In vitro* antibacterial activity of *Cassia tora* L. stem

Bacteria	Zone of inhibition		
	Ethanol 0.10mg/ml	Aqueous 0.25mg/ml	Standard (streptomycin) 1mg
<i>P. aeruginosa</i>	10	11	18
<i>Lactobacillus</i>	12	14	16
<i>S. typhi</i>	-	4	24
<i>P.vulgaris</i>	11	12	15
<i>B. subtilis</i>	8	10	20
<i>S. aureus</i>	11	15	22
<i>S. pneumonia</i>	7	8	14
<i>E. coli</i>	11	12	15
<i>Enterobacter</i>	10	12	16

Antimicrobial activity of ethanolic extract (0.10mg) and aqueous extract (0.25 mg) against various bacteria but maximum activity is shown by aqueous extract against *Staphylococcus aureus*, *Lactobacillus* and show moderate activity against *Pseudomonas aeruginosa*, *P.vulgaris* and *Enterobacter* and show less activity against *Bacillus subtilis* and *Escheria coli* aqueous extract did not show any against *Salmonella typhi*. While ethanolic extract show less activity as compared aqueous extract but show maximum activity against *Staphylococcus aureus* *Lactobacillus* (Table 1).

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