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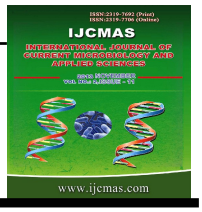

Short Communication

In vitro antibacterial activity and phytochemical screening of *Cassia tora* leaves

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Keywords

Antibacterial activity, Phytochemical screening *Cassia tora*

A B S T R A C T

Ethanolic and Aqueous extracts from the leaves of *Cassia tora* were investigated for their antibacterial activity. Their concentrations 0.15mg, 0.31mg 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. Ciprofloxacin used as standard reference. The antibacterial activity of ethanolic and aqueous extracts of *Cassia tora* has therefore been demonstrated for the first time in South India.

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, (Ahmad, I,*et al.*, 1998)laxative, antiperiodic, anthelmintic, ophthalmic, liver tonic, cardiotonic and expectorant. The leaves and seeds are useful in leprosy, ringworm, flatulence, colic, dyspepsia, constipation, cough, bronchitis, cardiac disorders (Chan MJ,*et al.*, 2001).Chemical component of *Cassia tora*are anthraquinones, chrysophanol, emodin, obtusifolin, obtusin, chryso-obtusin, aurantio-obtusin, and their glycosides. Naphthopyrones, rubrofusarin, norrubro-fusarin, rubrofusaring, entiobioside. Toralactone, torachrysone. Roots contains 1, 3,5- trihydroxy- 6-7- dimethoxy - 2 - methylanth- roquinone and beta-sitosterol.While Seeds contains Naptho-alpha-pyrone-toralactune, chrysophanol, physcion, emodin, rubrofusarin, cchrysophonic acid-9-anthrone.

Emodin, tricontan-1-0l, stigmasterol, Beta-sitosteral-beta-D-glucoside, freindlen, palmitic, stearic, succinic and d-tartaric acids uridine, quercitrin and isoquercitrin are isolated from leaves (Davis J. 1994 and Desta B. 1993).

Antibacterial, anti-platelet aggregation, hepatoprotective, cAMP-phosphodiesterase inhibitory activity antifungal, antiyeast, anti-inflammatory and antiestrogenic, Hypolimpidemic, anti-mutagenic and antioxidant activities has been evaluated. (Devi PU, *et al*., 1994,and Karaman I, *et al*., 2003).

Literature survey revealed that the plant extract has yet not been screened for its traditional claim of antibacterial activity. Therefore the objective of this work was to explore the antibacterial properties of *Cassia tora*leaves in south india.

Materials and Methods

Cassia tora leaves were collected from local area of Kanchipuram. The taxonomical identification of plant was done Arignar Anna Government Hospital of Indian Medicine in Arumbakkam, Chennai, India.

Dried leaves at room temperature and 10gm powdered leaves were successively defatted with petroleum ether (40-60°). Defatted residue was extracted with ethanol.

Aqueous extract of this plant was prepared separately by boiling plant material with 200ml of water for 45 min. the obtained extract was evaporated on water bath to give dried residues. Percentage yield of various extracts was found to be 3.00% (ethanol), 10.3% (aqueous extract).

Phytochemical screening

Ethanolic extracts showed the presence of cardiac glycosides, flavonids and saponins, alkaloids. Aqueous extract showed fats, carbohydrates, saponins, less quantity of cardiac glycosides, flavonids. (Mastroeni P. 2002 and Robins-Browne RM, *et al*., 2002).

Antimicrobial Activity

Ethanolic and aqueous extracts from the leaves of *Cassia tora*were investigated for their antibacterial activity against *Pseudomonas aeruginosa, Lactobacillus,Salmonalatyphi, P.vulgaris, Bacillus subtilis, Staphylococcus aureus, Streptococcus pneumoniae, E. coli, Enterobacter*bacterias.

The filter paper disc method (Somchit MN,*et al*., 2003 and Villavicencio MA,*et al*., 1992)was performed using Nutrient broth media. These agar media were inoculated with 0.5 mL of the 24hliquid cultures containing 10^7 microorganisms / ml. Filter paper discs (3 mm diameter) saturated with solutions of each compound (concentrations 100µg/ml in DMSO) was placed on the indicated agar mediums. 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 Ethanolicextract revealed the presence of Anthraquinone glycosides, Phenolic compounds; Saponin glycoside and while aqueous extract showed presence of glycosides and Phenolic compounds, Saponin glycoside.

Antimicrobial activity of Ethanolic extract (0.15mg) and Aqueous extract(0.31mg) 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 *Eschieria coli* But aqueous extract did not show any activity against *Salmonella typhi*. While ethanolic extract show less activity as compared to aqueous extract but show maximum activity against *Staphylococcus aureus and Lactobacillus* as comparative to standard shown in table no.1

Table.1 Antimicrobial activity Data of *Cassia tora leaf*

S. No	Name of Bacteria	Zone of Inhibition (mm)		
		Ethanolic Extract (0.15mg)	Aqueous Extract (0.31mg)	Std (2mg)
1	*P.aeruginosa*	10.5	11	18
2	*Lactobacillus*	11	13	16
3	*S. typhi*	-	4	24
4	*P.vulgaris*	10	12	15
5	*B. subtilis*	8.5	10	20
6	*S. aureus*	11	15	22
7	*S. pneumonia*	7	8	14
8	*E. coli*	8	9	15
9	*Enterobacter*	9	11	16

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