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Evaluation of Antityphoid Activity of Coscinium Fenestratum

Anitha. S[1]*, Suresh GS[1], Ramaiah. M[2], Vaidya VP[3]
1.Chemistry Research Centre, SSMRV Degree College Jayanagar, Bangalore – 41.
2.NMKRV College for Women with PG and Research Centre, Jayanagar, Bangalore – 11.
3.Kuvempu University, JnanaSahyadri, Shankaraghatta – 577451.

ABSTRACT

The Plant *Coscinium fenestratum* belonging to the family *stercularaceae* contains alkaloids as the chief constituent. In the present study an attempt was made to isolate alkaloids from the extract showing the significant antityphoid activity. The plant was collected from the region of Kerala and was authentified by Department of Botany in Kerala University. The whole plant was air dried and ground into fine powders and subjected for successive extraction using petroleum ether, chloroform, butanol, ethanol, methanol and water. In the present investigation, the successive extracts were tested for anti typhoid activity against *Salmonella typhi*, *Salmonella paratyphi A* and *Salmonella paratyphi B* organism in comparison with standard antibiotic ciprofloxacin using dimethyl formamide as blank. The extracts were dissolved in dimethyl formamide and inoculated in the agar nutrient media. The zone of inhibition was studied in triplicate analysis to evaluate the antityphoid activity. The zone of inhibition observed with ciprofloxacin was 36±0.2mm (*S. typhi*), 39±0.5mm (*S. Paratyphi A*) and 42±0.3mm (*S. Paratyphi B*). The chloroform extract showed 28±0.3mm (*S. typhi*), 32±0.2mm (*S. Paratyphi A*) and 35±0.5mm (*S. Paratyphi B*). This revealed the antityphoid activity of *Coscinium fenestratum.*

Keywords: *Coscinium fenestratum, S. Paratyphi A, S. Paratyphi B*

*Corresponding Author Email: anithavallish@yahoo.com
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INTRODUCTION

The Anti typhoid drugs are used to kill or destroy the organisms like *Salmonella typhi*, *Salmonella paratyphi A* and *Salmonella paratyphi B.* Hence in order to treat typhoid condition, antityphoid drugs are useful. In view of this, an attempt was made to evaluate the antityphoid activity of the plant *Coscinium fenestratum* belonging to the family *stercularacea* It mainly contains alkaloids and flavonoids as the chief constituents. The plant was collected from the region of sapthagiri hills of Kerala. The *Coscinium fenestratum* which was commonly known as *Daruharidhra* or Arishina balli is a Critically endangered species. The root bark of the plant is cylindrical in shape, grayish brown in colour, aromatic odour and bitter taste. The plant contains alkaloids, flavonoids, sterols and volatile principles. The isoquinoline alkaloid known as berberine was found to be major a compound. It contains anthocyanin type of compounds which can be used for wound healing property. The plant posses antidiabetic, anti-inflammatory, antihypertensive and hepatoprotective activities.

Figure 1: Plant *Coscinium fenestratum*

MATERIALS AND METHOD

The root bark of *Coscinium fenestratum* was collected from sapthagiri hills of Kerala state and authentified by Dr. P. Santhan, Plant Taxonomist, Regional Research Institute, (Batch no. 523/2012) Bangalore. The root bark of the plant was air dried, size reduced and passed through the mesh to get uniform sized particles. The 50g of powdered drug was subjected for successive extraction using different solvents like petroleum ether, benzene, chloroform, ethanol, methanol and chloroform water. The extraction was carried out using soxhlet assembly for 6 – 8 hrs. The extract was concentrated and the colour of the extract was noted with the extractive yield. The Preliminary Phytochemical Screening was carried out to know the different phytoconstituents reported in the drug. The TLC identity test was carried out for all the extracts using different mobile phases.

Evaluation of Antityphoid activity

The antityphoid activity of different extracts of Coscinium fenestratum was studied by agar cup plate method. Extracts at concentrations of 50mg/ml, 100mg/ml and 200mg/ml were tested against (*Salmonella typhi*) *Salmonella paratyphi* A *Salmonella paratyphi* B (procured from Pharmaceutical biotechnology and microbiology department). The activity of the extracts were compared with standard drug ciprofloxacin (10mg/ml). The pates were incubated at 370C for 48 hours and the zone of inhibition was measured. Dimethyl formamide solvent was used as a blank. The ethanolic, butanolic and chloroform extracts shown promising results against the used organisms.

RESULTS AND DISCUSSION

The ethanolic, chloroform and butanolic extracts showed antityphoid activity against the used organisms. The zone of inhibition observed with ciprofloxacin was 36±0.2mm (*S. typhi*), 39±0.5mm (*S. Paratyphi A*) and 42±0.3mm (*S. Paratyphi B*). The chloroform extract showed 28±0.3mm (*S. typhi*), 32±0.2mm (*S. Paratyphi A*) and 35±0.5mm (*S. Paratyphi B*). This revealed the antityphoid activity of *Coscinium fenestratum.* The chloroform extract has showed moderate to significant activity.

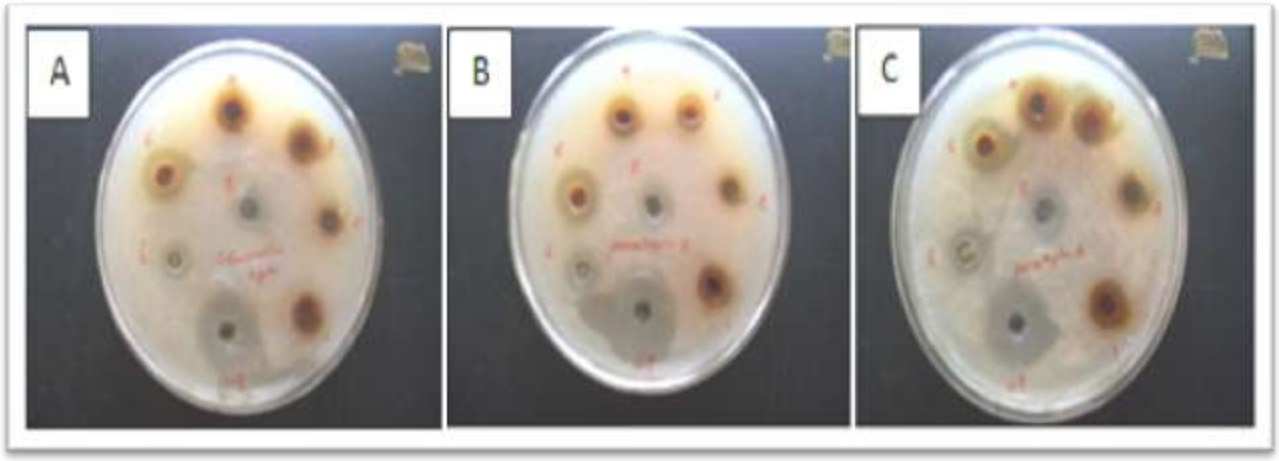

Figure 2 : showing the zone of inhibition of Standard cifroflaxin and various extracts of Coscinium fenestratuminoculated with S. typhi (A), S. Paratyphi A (B) and S. paratyphi B (C)

Table 1:The Anti typhoid activity of various extracts of *Coscinium fenestratum*

Sl No.	Extract/standard	Concentration	Zone of inhibition in mm		
			S. Typhi	***S. Paratyphi A***	***S. Paratyphi B***
1.	Ciproflaxin	10mg/ml	35	38	40
2.	Aqueous	50mg/ml	0	0	0
3.		100mg/ml	0	0	0

4.		200mg/ml	0	0	0
5	Methanol	50mg/ml	0	0	0
6.		100mg/ml	0	0	0
7.		200mg/ml	0	0	0
8.	Ethanol	50mg/ml	18	19	17
9.		100mg/ml	20	21	19
10.		200mg/ml	22	23	21
11.	Butanol	50mg/ml	21	23	22
12.		100mg/ml	22	23	25
13.		200mg/ml	24	25	23
14.	Chloroform	50mg	23	24	25
15.		100mg/ml	25	24	26
16.		200mg/ml	26	27	26

Table 2: The Antityphoid activity of the extract which had showed significant activity against *S. Typhi, S. paratyphi A, S. Paratyphi B*

Sample	Zone of Inhibition		
	S. typhi	S. paratyphi A	S. paratyphi B
Ciproflaxin	35	38	40
Aqueous extract	0	0	0
Methanol extract	0	0	0
Ethanol extract	22	23	18
Butanol extract	24	25	22
Chloroform extract	25	28	27
Petroleum ether extract	0	16	0

CONCLUSION:

In the present investigation, the successive extracts were tested for anti typhoid activity against *Salmonella typhi*, *Salmonella paratyphi A* and *Salmonella paratyphi B* organism in comparison with standard antibiotic ciprofloxacin using dimethyl formamide as blank. The extracts were dissolved in dimethyl formamide and inoculated in the agar nutrient media. The zone of inhibition was studied in triplicate analysis to evaluate the antityphoid activity. The zone of inhibition observed with ciprofloxacin was 36±0.2mm (*S. typhi*), 39±0.5mm (*S. Paratyphi A*) and 42±0.3mm (*S. Paratyphi B*). The chloroform extract showed 25±0.3mm (*S. typhi*), 28±0.2mm (*S. Paratyphi A*) and 27±0.5mm (*S. Paratyphi B*). This revealed the antityphoid activity of chloroform extract of *Coscinium fenestratum.*

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