

Premonsoon and Postmonsoon Effects On *Ceriops Tagal* from Sonmiani Bay, Balochistan

Khadija Sharif, Saba Rizwan*

Department of Botany, Jinnah University for Women, Karachi, Pakistan.

*E-mail: saba.rizwan@juw.edu.pk

ABSTRACT

The phytochemical constituents and antibacterial activity of the mangroves *Ceriops tagal* were assessed in this study. From Sonmiani, leaves were gathered in pre monsoon and post monsoon. Crude extracts of leaves contained alkaloids, flavonoids, tannins, terpenoids, saponins, and sterols, according to Phytochemical screening. Using a spectrophotometer, the total phenol levels, flavonoids, and antioxidant activity were measured. In pre and post monsoon total phenol concentrations ranged from 11.5 ± 0.3 to 25.43 ± 1 mg/ml, the total flavonoids from 3.14 ± 0.32 to

19.53 ± 0.2 mg/ml, and the antioxidants from 3.5 ± 0.5 to 17.2 ± 0.11 mg/ml. Total phenol, total flavonoids, and antioxidant activity were highest in the leaf extracts of both pre monsoon and post monsoon *C. tagal* leaves (27.21 ± 1.2 mg/ml, 17.23 ± 0.13 mg/ml, and 15.2 ± 0.13 mg/ml, respectively). Four harmful microbial species were also evaluated against crude ethanol extracts of *C. tagal*. By antimicrobial testing it is observed that ethanolic leaf extracts in pre monsoon

C. tagal leaf extract shown a variety of growth inhibitions. In *Staphylococcus aureus* and *Salmonella typhi* zone of inhibition measured 13.5 ± 0.4 mm, 14.5 ± 0.3 mm respectively. While maximum inhibition found in *Pseudomonas* sp. with 21.4 ± 0.3 . However, ethanolic extract of *C. tagal* post monsoon leaf extract showed their maximum efficacy against *Aspergillus niger*

22.4 ± 0.2 among all microbes.

Keywords: Mangrove, Antimicrobial, Phytochemical, Medicinal, Pre and Post Monsoon.

OBJECTIVE

Aim of this research is to explore medicinal efficacy of *C. tagal* in 2 different environmental parameters by evaluating phytochemical estimation of secondary metabolites and measuring its efficacy against disease causing pathogen.

MATERIAL AND METHODS

Collection of Samples

- Mangroves leaves of *C. tagal* collected from Sonmiani Bay in pre monsoon and post monsoon weather, Lasbela district, Balochistan.
- All isolated microbes *S. aureus*, *S. typhi*, *Pseudomonas* sp. and *A. niger* are collected from C. diagnostic lab.

Phytochemical and Microbial Activity

Qualitative estimation of phytochemical constituents, antioxidant followed by the method of Pant *et al.*, 2017., Rizwan *et al.*, 2024 and Bauer *et al.*, 1966 method used for Disk Diffusion for microbial activity. Quantitative measurements methods are followed by Cilesizoglu *et al.*, 2022 and Madhu *et al.*, 2016.

RESULT

Premonsoon result showed highest zone of inhibition of leaf extract against *Pseudomonas* sp. (Figure 1). while post monsoon result of leaf extract demonstrated maximum zone of inhibition against *A. niger* (Figure 2). Climatic effects also trigger more bioactive compounds of *C. tagal* in postmonsoon trial (Table. 1)

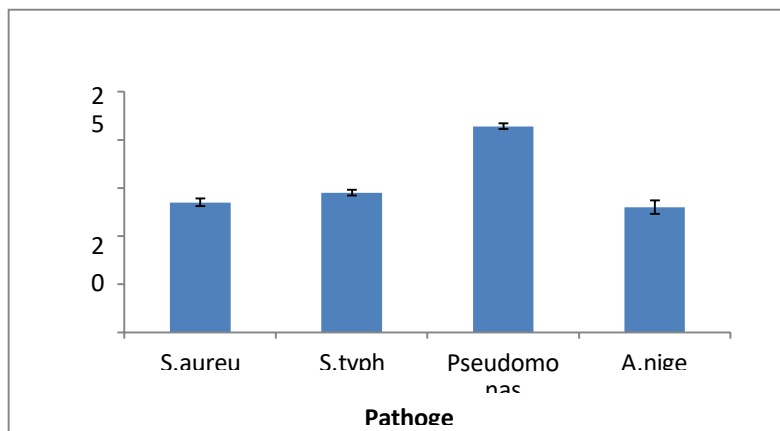


Figure 1. Given graph represents zone of inhibition in mm against *C. tagal* ethanolic leaf extract (Pre Monsoon).

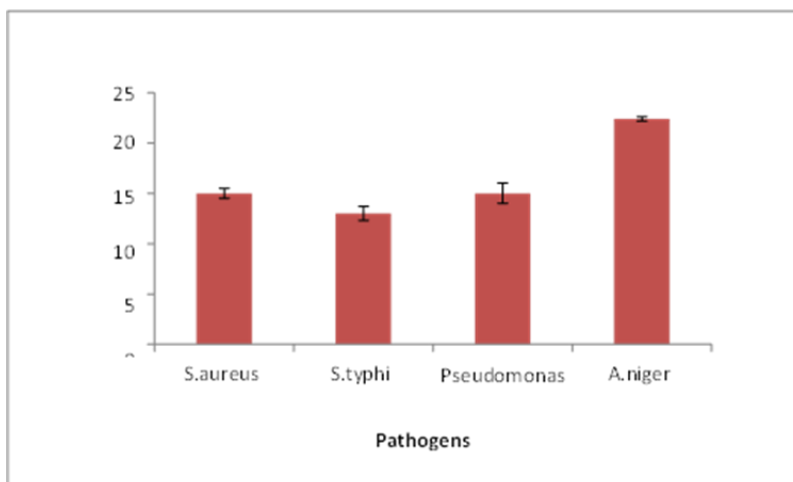


Figure 2. Given graph represents zone of inhibition in mm against *C. tagal* ethanolic leaf extract (Post Monsoon).

Table1. *C. tagal* From Sonmiani Were Screened Qualitatively for a Few Phytochemicals in Leaf Extracts.

Phytochemical Constituent	<i>C.Tagal</i> leaf Extract	
	Pre Monsoon	Post Monsoon
Alkaloids	++	+++
Terpenoid	+	++
Tannin	++	++
Flavonoids	++	++
Saponin	+	++
Sterols	+	++

CONCLUSION

The phytoconstituents and antibacterial activity of *C. tagal* leaves gathered before and after the monsoon season were examined in this study. Higher levels of antioxidants, flavonoids, and total phenols were found in both periods of monsoon. Increased antibacterial activity observed against *A. niger* (in post-monsoon) and *Pseudomonas* sp. (in pre-monsoon). According to our research, *C. tagal* has important phytochemical and antibacterial qualities that could be used in the pharmaceutical and medical sectors.

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