

In vitro* Antifungal Activity of *Plumbago zeylanica

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***In vitro* activity of ethanolic and methanolic plant extracts of *Plumbago zeylanica* was investigated against *Aspergillus* sp., *Penicillium*, *Aspergillus* sp. and *Fusarium* sp. The ethanolic extract exhibited significant activity against *Aspergillus*, *Penicillium* sp. and *Fusarium* sp. Aqueous and acetone extracts were showed moderate activity followed by petroleum ether extract.**

Keywords: Antifungal activity, *Plumbago zeylanica*, plumbagin.

Plumbago zeylanica (Plumbaginaceae) is an Indian medicinal plant with acknowledged medicinal properties¹. It is used in the traditional system of Indian medicine against a number of diseases like diarrhoea and skin diseases². Plant roots contains active components like plumbagin, 3-chloroplumbagin, 3-3-biplumbagin, biphthoquinone and four pigments like isozeylanone, zeylinone, elliptinone and droserone³.

The literature survey reveals that *P. zeylanica* has much pharmacological importance. Biological activities of crude extract and active constituents of this plant reported so for antimicrobial, insecticidal, antimutagenic, antitumor, and antioxidant properties⁴⁻⁹. The active principle, plumbagin was used as curing agent on multidrug-resistant bacteria of clinical origin¹⁰⁻².

The dried root powder of *P. zeylanica* plant was purchased from Ayurvedic medical shop. Each of 100 gm of root powder was extracted separately with ethanol, acetone, petroleum ether and water using soxhlet extractor

apparatus. The extract was evaporated to dryness under controlled temperatures. All these extracts were dissolved separately in dimethyl sulphoxide (DMSO) solvent with final concentration of 10 mg ml⁻¹. All samples were filter sterilized and tested for antifungal activity against DMSO as control.

All fungal cultures used in this study were procured from Mycology Department, Agharkar Research Institute, Pune. The medium used for this study was potato dextrose agar. The antifungal activity was determined by agar well method against *Aspergillus* sp., *Penicillium* sp. and *Fusarium* sp. having count of 10⁵ CFU ml⁻¹. The plates were incubated at 28 ± 2°C for 48 h and measured the zone of inhibition of fungal growth on PDA medium. The results of antifungal activity of *P. zeylanica* root powder with different solvent extract are summarized in Table 1. From zone of inhibition, it is evident that the ethanolic extract exhibited promising antifungal activity against all fungal strains selected in this study. Acetone, diethyl ether and aqueous extracts were showed moderate antifungal activities against all fungi. This study opens perspectives to find more effective drug of plant origin in the treatment of fungal infections mainly in skin diseases.

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Table 1. Antifungal activities of different extracts of roots of *P. zeylanica*

Fungal strains	Zone of clearance (mm)				
	I	II	III	IV	V
<i>Aspergillus</i> sp.	17	10	10	09	-
<i>Penicillium</i> sp.	15	06	09	05	-
<i>Fusarium</i> sp.	16	09	08	10	-

I- Ethanol extract, II- Acetone extract, III- Diethyl ether extract,
IV- Aqueous extract, V- Control (DMSO), - No activity

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