



In vitro screening of antimicrobial activity of *Orobanche aegyptiaca*

T. G. Nagaraja, R. B. Nare and Vd. Laxmikant, B. Patil *

ABSTRACT

An attempt was made to assess antifungal activity of *Orobanche aegyptiaca* Pers ethanolic and acetone extracts. Agar well diffusion technique was followed for screening against fungi like *Fusarium oxysporum*, *Trichothecium roseum*, *Cladosporium herbarum* and *Trichoderma viridi*. The maximum inhibition zone was recorded in acetone extracts of stem.

Key words : *Orobanche aegyptiaca*, fungi, antimicrobial activity

INTRODUCTION

Indiscriminate use of chemical pesticides for the past few decades in agriculture to control all pests and diseases has done great harm to human beings, animals, vegetation and to environment as a whole. These pesticides enter into our food chain, besides their non-target effect and hazardous nature created environmental pollution. Thus plant extracts are used, known to be the best environmentally safe, biodegradable, harmless to non - target organism. In this regard a root parasite on Tobacco plant i.e., *Orobanche aegyptiaca* Pers was selected to study its anti-fungal and anti-bacterial activity. *Orobanche aegyptiaca* Pers a noxious and root parasite on Tobacco crop lacks Chlorophyll and gets its nourishment from the host plant (Tobacco). This weed is a native to southern and central Europe where it caused severe problem, as the plant contains several alkaloids, peptides etc., and traditionally used for skin diseases. A scrutiny of available literature reveals that no information is available regarding its anti - microbial activity. Therefore, an attempt was made to study its anti fungal and anti - bacterial activity.

MATERIALS AND METHODS

Fresh stem and flowers of *Orobanche aegyptiaca* Pers were harvested in the morning hours from Nipani (Karnataka State) periodically. The collected samples were washed thoroughly in the tap water and then rinsed in distilled water and shade dried at room temperature. The dried samples were ground well using domestic grinder into a fine powder. The 15 gm of each sample powder was used separately for extraction in ethanol and acetone solvent. The extraction was carried out by Soxhlet

apparatus for 12-14 hours. The extract were then filtered and concentrated in a rotary vacuum evaporator, till a brownish green semi-solid gummy material was obtained. The concentrated extracts were used for studying anti-microbial activity.

The four different species of fungi viz., *Fusarium oxysporum*, *Cladosporium herbarum*, *Trichothecium roseum* and *Trichoderma viridi* were obtained from the Department of Botany, Shivaji University, Kolhapur and were maintained on PDA and Czapek Dox Agar media. Fungal spore suspensions were prepared with distilled water, 5 ml of each spore suspensions was mixed with 100 ml of sterilized PDA with constant shaking. 20 ml of seeded medium was transferred to sterile petriplates and kept for solidification (Collin and Lyne, 1976). After solidification of media a well was scooped out at the center, using 5 mm sterile cork borer. The test solution of 1 ml was poured into the well by the method of Alice and Sivaprakasam (1996). Three replicates were maintained for each treatment and the cultures were inoculated at 28°C for 48 hours and inhibition zone was recorded and measured in millimeter.

RESULTS AND DISCUSSION

The results were depicted in Table 1. and 2. A maximum zone of inhibition was recorded in alcoholic extract of stem of *Orobanche aegyptiaca* Pers against *Trichothecium roseum* (22.6 mm) followed by *Cladosporium herbarum* (19.8 mm). Whereas alcoholic flower extract shows 16.4 mm of inhibition zone against *Trichoderma viridi*. On the contrary, 22.8 mm of inhibition zone was recorded in acetone extract of stem of *Orobanche*

Table 1. Ethanolic and acetone extract of *Orobancha aegyptica* against fungi

Fungi	Ethanol			Acetone		
	Control	Stem extract	Flower extract	Control	Stem extract	Flower extract
<i>Fusarium oxysporum</i>	9.0	16.0	13.2	9.0	18.6	15.6
<i>Trichothecium roseum</i>	9.0	22.6	14.3	9.0	22.8	16.8
<i>Cladosporium herbarum</i>	9.0	19.8	13.1	9.0	22.1	19.9
<i>Trichoderma viridi</i>	9.0	21.5	15.3	9.0	21.5	15.3

aegyptica Pers against *Trichothecium roseum*, followed by *Cladosporium harbarum* (22.1 mm). Therefore, alcoholic and acetone extract of stem is found to possess potential antifungal property. A similar result is recorded by Nagaraja (2008) in *Barringtonia acutangula* (L) Gaertn. Therefore, results obtained in the present study help in using botanicals in disease management.

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T. G. Nagaraja, R.B. Nare and Vd. Laxmikant, B. Patil *
 Department of Agrochemicals and Pest Management
 Shivaji University, Kolhapur - 416004, Maharashtra, India.
 E - mail: tgnagaraja @ rediff mail.com
 *Ganga Ayurvedi Medical College, Kolhapur - 416004,
 Maharashtra, India.

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