

Allelopathic interaction of *Lantana camara* leaf of extract on growth of *Parthenium hysterophorus* in seedling stage

■ ARPANA MISHRA

SUMMARY

The effect of leaf extract of *L.camara* was studied on the growth of *Parthenium hysterophorus* in seedling stage. Leaf extract showed pronounced inhibition of shoot length, root length, leaf area, fresh and dry weight of the test species. The inhibitory effect was strictly concentration dependant. Maximum inhibition in growth was observed in 100 per cent aqueous leaf extract.

Key Words : Allelopathy, Leaf extract, *Lantana camara*

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Invasive species are recognized as one of the major threats to native species and ecosystems around the world (Kathiresan, 2004; Kathiresan *et al.*, 2005). Invasive species are of concern because of their capability of spreading fast, their high competitiveness and ability to colonize new areas within short periods. The nature and severity of the impacts of these species on society, economic life, health and national heritage are of global concern (McNeely *et al.*, 2001). *Parthenium hysterophorus* L. commonly called congress grass or carrot weed is one of the aggressive, obnoxious, (Oudhia, 2000) invasive weeds that has made wide distribution globally affecting the growth of native species (Bhan *et al.*, 1997). It is one of the worst weeds for agriculture, environment, human health and economy (Rupschus *et al.*, 2007; Wiesner *et al.*, 2007). Management of the obnoxious growth of some weed species through allelopathy has attracted considerable attention in recent years (Rice, 1984; Gopal and Goel, 1993).

Allelochemicals are present in plant roots, rhizomes, stems, leaves, flowers, inflorescence, pollen, fruits and seeds, but leaves are the major source of allelochemicals (Rice, 1984).

L. camara is notorious, noxious and invasive weed belonging to Verbenaceae family. *L. camara* has allelopathic

effect against agronomic crop such as *Brassica juncea*, *Raphanus sativus*, *Cucumis sativus* L., *Cicer arietinum* L., *Phaseolus mungo* etc. Allelochemicals of *L. camara* could be exploited for weed control. Allelochemicals of *L.camara* has potential in the development of new herbicides. Therefore, in the present study an attempt was made to know the effect of *L.camara* leaf extract on growth of *P.hysterophorus* in seedling stage.

MATERIALS AND METHODS

The study area Shakti nagar lies in the Banda district of Uttar Pradesh in between Latitude 24° 53' and 25° 55' N, Longitude 80° 07' and 81° 34' E, the geographical area of the district is 4114.20 sq. km. Leaves, stems and roots of *Lantana camara* were collected from Chitrakoot region of Madhya Pradesh. Collection of raw material and preparation of extract was done two days in advance for each spray. Plant parts were separated into leaves, stems and roots. Roots were carefully removed from soil.

The preparation process of aqueous extract was undertaken for *Lantana camara* different parts leaf, stem and root aqueous extract is as under. 100 g of each leaf, stem and root were chopped in small pieces and crushed in the mixture grinder. After grinding the material of leaf, stem and root paste were soaked in 200 ml of distilled water for 24 hrs then different concentrations *viz.*, 100 per cent, 50 per cent, 33 per cent, 25 per cent were prepared and water as a control treatment. The

— AUTHOR FOR THE CORRESPONDENCE —

ARPANA MISHRA, Department of Botany, Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya, Chitrakoot, SATNA (M.P.) INDIA

Email: arpanamishra@ymail.com