

Effects of *Eichhornia crassipes* extract on germination and early seedling growth of *Pennisetum typhoides*

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ABSTRACT

Water hyacinth (*Eichhornia crassipes*) is a cosmopolitan noxious aquatic weed. The plant is known to absorb and accumulate heavy metals from sewage and blackish water. It is impossible to remove it completely from environment because water hyacinth is fastest growing weed and seed can germinate after twenty years. In present paper the phytotoxic effect of *Eichhornia crassipes* extract on germination and early seedling growth of *Pennisetum typhoides* have been given. Germinating seeds of *Pennisetum typhoides* is treated with aqueous *Eichhornia crassipes* extract and observations of early seedling growth for different time durations (24-72hrs) and various concentrations (5%-40%) is observed to monitor the phytotoxicity. The increase in the root and shoot lengths of *Pennisetum typhoides* at lower conc. (upto 20%) and shoot growth is more reduced at higher concentration are recorded. The phytotoxicity may be related to mitostatic and cytotoxic activity of extract.

Key words: *Eichhornia* extract, *Pennisetum typhoides*, mitostatic, phytotoxic.

INTRODUCTION

Water hyacinth (*Eichhornia crassipes*), native to America is a noxious aquatic weed which changes its biodiversity with devastating effects on environment by blocking canals and pumps in irrigation projects, interfering with hydro electricity production and clogging river or canals to the extent that the drainage is checked completely leading to floods. It imparts a global ecological and economical problems especially in tropical and sub-tropical countries and considered as the worst aquatic plant in the world, as it is impossible to eradicate it completely. Matai and Bagchi (1980) considered the plant to be rich source of plant nutrients. The plant is able to accumulate heavy metals from waste water, coalmine effluent, radioactive decays etc (Cd, Cr, Co, Ni, Pb, Hg, Cu etc) (Zaranyika *et al.*, 1994; Mishra *et al.*, 2007; Upadhayay *et al.*, 2007).

Heavy metals are major environmental contaminants of air, water and soils especially in the areas of heavy automobile traffic, near metals smelters or in places where oil is burned for heating purposes (Srivastava and Rawat, 2008, Skinner *et al.* 2007, Vardayan & Ingole 2006). Present paper deals with the phytotoxic effect of *Eichhornia crassipes* extract on *Pennisetum typhoides* as test system. Dry and presoaked seeds are treated with aqueous *Eichhornia* extract for different durations.

MATERIAL AND METHODS

The plant of *Eichhornia crassipes* is dried and cut pieces are grinded by mixer and grinder to get the fine powder of plant. The stock solution has prepared by dissolving 10gm of powder in 100ml of distilled water. The different concentrations 5%, 10%, 20%, 30%, 40% have prepared by adding

crassipes extract will act as a initiator and growth promoter for germinating seeds of *Pennisetum typhoides*. The higher concentration of extract will

act as a mitostatic agent in the form of pesticide and fungicide.

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