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RESEARCH PAPER

Allelopathic influence of purple nutsedge (*Cyperus rotundus* L.) root exudates on germination and growth of important field crops

M. AMEENA*, V.L. GEETHAKUMARI AND SANSAMMA GEORGE
Department of Agronomy, College of Agriculture, THIRUVANANTHAPURAM (KERALA) INDIA
(Email : mrajeshpath@yahoo.co.in)

Abstract : Purple nutsedge, a native of India is a pernicious perennial weed in 52 crops in more than 90 tropical and subtropical countries and is ranked as one of world's worst weeds. It asserts allelopathic effects on crop plants through inhibition of germination, growth or metabolism. Under field conditions, the deleterious effect of weeds may be facilitated by exudates, leachates from decomposing residues and residues incorporated to the growing medium. In the present study, laboratory experiments were carried out to investigate the allelopathic influence of nutsedge root exudates collected at different growth stages on seedling growth of rice, cowpea, sesamum, okra and brinjal. The nutsedge root exudates collected at sprouting stage inhibited the germination and growth of all the crop seeds tested which would be due to the release of some inhibitory chemicals from nutsedge tubers into the medium during the process of sprouting. However, the exudates collected at later stages did not elicit any response on growth characters of crop seeds. Significant reduction in vigour index was observed in sesamum and okra indicating that nutsedge inhibits the growth of associated crops by the production of inhibitory substances as root exudates.

Key Words : Purple nutsedge, Allelopathy, Allelochemicals, Root exudates, Vigour index

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*** Author for correspondence (Present Address)** : Krishi Vigyan Kendra (K.A.U.), PALAKKAD (KERALA) INDIA