

### Short Communication

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## EFFECT OF PURPLE NUTSEDGE (*CYPERUS ROTUNDUS L.*) LEAF EXTRACT ON GERMINATION AND SEEDLING GROWTH OF WHEAT

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Purple nutsedge (*Cyperus rotundus L.*) is a noxious perennial weed of warm regions of the world [1,2] propagating through a strong subterranean system of polymorphic stems consisting of rhizomes, tubers and basal bulb [3]. Several workers have reported that incorporation of tubers of this weed to soil caused severe growth inhibition of different crops (4-6). The present work was undertaken to study the effect of aqueous extract of purple nutsedge on germination and seedling growth of wheat crop. Fresh leaves of the weed were collected, washed with water and dried in the sun. The samples were then dried in an oven at 75° for 24 hr ground in a Wiley mill to pass through a 20 mesh screen. Five levels (0, 0.5, 1.0, 1.5 and 2% w/v) of purple nutsedge water extract were prepared by soaking the residue in distilled water for 24 hr. The extracts were filtered. Wheat seeds (cv. Sarsabz) were sterilized with 1% NaOCl for two mints, washed with water. Ten seeds were placed on the surface of filter paper in petridishes containing 10 ml of aqueous extract of each level separately. The petridishes only with water were treated as controls. The sets were incubated at 28° for five days. Treatments were replicated four times in a randomized complete design. Germinated seeds were counted and their shoot and root lengths measured.

TABLE 1. EFFECT OF PURPLE NUTSEDGE LEAF EXTRACT ON THE GERMINATION AND SEEDLING GROWTH OF WHEAT

Level of purple nutsedge leaf extract (%)	Germination (%)	Shoot length (cm)	Root length (cm)
0.0	96a*	7.92c	6.89b
0.5	88a	11.65a	8.36a
1.0	78b	10.84b	7.56b
1.5	78b	7.57c	5.52c
2.0	66c	5.27d	4.11d

\*In a column, means followed by the same letters are not significantly different at 5% level of DMRT.

There was significant inhibitory effects of aqueous extract on germination. The maximum percent reduction of 31 in seed germination was occurred at 2% level of extract. This shows that aqueous extract was found to have an inhibitory effect on wheat germination. The shoot and root lengths increased at levels of 0.5 and 1.0% compared to control. However, the growth in both cases was decreased beyond the level of 1%. At the highest level of 2% extract the shoot growth was reduced by 33% and root by 40%. In an experiment it was observed that lower concentration of stolon and root of quackgrass stimulated the germination and seedling growth of rape and oats, while the higher concentration inhibited them [7]. Root growth was affected more than the shoot. This may possibly be due to the fact that roots get in contact directly with the extract when incorporated and subsequently are exposed to water soluble toxin compounds, released from the extract either through the process of leaching or microbial action upon decomposition which in turn may have a direct or indirect inhibitory effects on the plant root (8-11).

The inhibitory effect on shoot also suggests that the inhibitory compound is taken up by roots and translocated to shoot in a form inhibitory to growth.

**Key words:** *Cyperus rotundus*, Wheat, Growth.

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