

POSITIVE ALLELOPATHIC INTERACTION OF *AMARANTHUS VIRIDIS* WITH *TRITICUM AESTIVUM*

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Abstract: Crop and crop-weed residue (previously growing in the field) allelopathic interactions were investigated in common field plants in simulated isolated pot plantation experiments. *Triticum aestivum* UP-2338 (crop plant) grown in soil treated with *Amaranthus viridis* (crop-weed) dry root powder (ADP), resulted in increased % germination with increase in concentration of ADP. Root length, shoot length and vigour-index were observed maximum in wheat plants grown in soil treated with 0.2% ADP and minimum in soil without ADP (control). Plant biomass, total sugar, chlorophyll a, Chl.b, total chlorophyll and total carotenoid contents increased in all treatments except in plants grown in 0.5% ADP treated soil as compared to control. NRS and organic carbon increased with increasing concentration of ADP whereas nitrogen, phosphorus, RS and phenolics declined as compared to untreated. Total protein, protease, α -amylase activities declined in roots ADP concentration above at 0.2%. Peroxidase activity increased at 0.2% ADP and maintained almost the same level at further increase in ADP concentration. In shoots, protease, α -amylase and peroxidase activities declined though total protein increased with increasing concentration of ADP. The allelochemicals of *Amaranthus viridis* directly influences the root metabolic activities, indirectly influencing (promoting) shoot metabolic activities.

Keywords: Allelopathy, Allelochemicals, α -Amylase, Vigour-index, ADP

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