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**Assessment Of Allelopathic Potential Of *Artemisia Annua* On Germination Of Wheat, Maize, And Some Associated Weed Species**

HASSANEIN E.E., M.M. ABD EL-HAMID AND M.S. MEKKY

*Weed Res. Lab., Field Crops Res. Inst., ARC, Giza, Egypt.*[mekky67@yahoo.com](mailto:mekky67@yahoo.com)**ABSTRACT**

Five laboratory and greenhouse experiments were carried out at Weed Research Laboratory at Giza Agricultural Research Station, ARC, during the period from 2006 to 2008 to evaluate the allelopathic effects of aqueous or natural white vinegar 5% acetic extracts of annual wormwood, *Artemisia annua* on seed germination of some weed species and the two crops of wheat and maize. Results show that *Sonchus oleraceus*, *Sinapis arvensis* and *Anagallis arvensis* were sensitive to both natural white vinegar 5% acetic acid and aqueous *Artemisia* extracts when applied post emergence at 2-4 leaf stage of weeds without any obvious injurious effects on wheat or grassy weeds i.e *Avena fatua* or *Phalaris paradoxa*. However, *Rumex dentatus*, *Chenopodium album*, *Sonchus oleraceus*, *Amaranthus hybridus* and *Portulaca oleraceus* were susceptible to the different studied concentrations of *Artemisia* extract when applied either pre or post-emergence at 2-true leaves of weeds. There was no injury to maize plants resulted from the pre-emergence application of *Artemisia* extracts but there was phytotoxic effect when they were applied at the rate of 1750 and 3500 mg pot<sup>-1</sup> as post-emergence. Also, the application of *Artemisia* extracts at 875 mg pot<sup>-1</sup> at 2-4 leaf stage of maize is promising against broadleaf weeds without any phytotoxic effect to maize plants. These results suggested that *Artemisia* extracts could be promising and very specific against broadleaf weeds in grassy crops such as wheat and maize. Further studies will be needed to justify the rate and methods of application under field conditions.

**Key Words:** Allelochemical, Annual wormwood (*Artemisia annua*), wild oat (*Avena fatua* L.), canary grass (*Phalaris paradoxa* L.) sowthistle (*Sonchus oleraceus* L), khardal barri (*Sinapis arvensis* L.) and primpernel (*Anagallis arvensis* L.)