

Thorn apple (*Datura stramonium* L.) allelopathy on cowpeas (*Vigna unguiculata* L.) and wheat (*Triticum aestivum* L.) in Zimbabwe

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Abstract

Datura stramonium extracts have allelopathic properties. The study was conducted to investigate the allelopathic effects of *D. stramonium* weed on seed germination, early seedling growth and dry biomass of crop plants (*Triticum aestivum* and *Vigna unguiculata*). Laboratory and greenhouse trials were arranged as completely randomised design and the field pot experiment was arranged as a randomised complete block design. Aqueous leaf extracts of *D. stramonium* at 2, 4, 6 and 8% concentrations were applied to determine their effects on seed germination, early seedling growth of crops under laboratory, field and greenhouse conditions. Distilled water (0%) acted as a control. Results from the study indicated that germination, shoot length and dry weight significantly decreased proportionally ($p < 0.001$) as the concentration increased from 2 to 8%. The results showed that *D. stramonium* has allelopathic effects on wheat and cowpeas, hence cannot be used as a bio herbicide to control *Tagetes minuta* and *Amaranthus hybridus* on the selected crops since it is non selective to the crops studied. There is therefore need for further research on screening of arable crops against the allelopathic effects of *D. stramonium*. This will help to identify arable crops which are not negatively affected by allelochemicals from *D. stramonium* weed so that it can be used as a selective bio herbicide against other weeds.