

## **Comparison of the Effect of Some Medicinal Plants Extracts on Germination and Growth of a Dicotyledonous Plant Lentils (*Lens Culinaris*) and Monocotyledonous Plant Maize (*Zea Mays*)**

BAESHEN, A.A. & ABDULLATIF, B.M.

Department of Biological Sciences, Faculty of Science, King Abdulaziz University, Jeddah, Saudi Arabia

A number of crops exhibit allelopathic interactions that play a significant role in the complex environment of agroecosystems. Several studies have shown that allelopathic crops reduce growth, development and yield of other crops growing nearby simultaneously or subsequently in the fields. Another aspect of interest regarding crop allelopathy is that allelochemicals may exhibit inhibitory effect on the same crop which is commonly called crop autotoxicity. It is predominantly common in fields where sole cropping under reduced or no-tillage system is practiced. While any crop part can be allelopathic, including pollens, decomposing crop residues exhibit more influence on other plants. In the present study, three concentrations (100, 50, and 25%) of *Eruca sativa*, *Mentha peperina*, and *Coriandrum sativum* water extracts, prepared by grinding fresh leaves of the medicinal plants in distilled water, were tested for their allelopathic effects on seed germination and some growth parameters of the dicot. *Lens culinaris* and the mononcot *Zea mays*. The experiment was conducted in sterilized Petri dishes under laboratory conditions at 25°C constant temperature, with 24h, 48h, and 72h extract exposures and a 0% extract water control. In lentils, germination reached 100% when treated with 50% and 25% *E. sativa* and 25% *M. peperina* extracts, but showed reduced germination when exposed to all 100% crude extracts. Radical and plumule length were increased at concentrations of 50% and 25% *C. sativum*, and 25% *M. peperina* compared to the control. Plumule fresh and dry weights increased at all *M. peperina* aqueous extracts compared to control. In maize, germination percentage was suppressed when plants was treated with 100% extracts, however, 50% an 25% of *M. peperina* increased germination percentage by 4 times more than the control. Moreover, 50% and 25% extracts of *M. peperina* and 50% of *C. sativum* increased maize radicle and plumule length by 3 to 4 times that of the control. Results of plumule fresh and dry weights revealed that, concentrations of water extracts of 100% and 50% *M. peperina*, *E. sativa* 100% and *E. sativa* 50% reported almost similar plumule fresh weight as in control plants. The most interesting finding is the reduction in harmful salts and TDS which could be an advantage in the saline soils of Saudi Arabia.