

Allelopathic Effect of Foliar Extracts of *Leucaena leucocephala* on Germination and Growth Behavior of *Zea mays* L.

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Abstract : Allelopathy is a potential area of research for sustainable agriculture. It is environmentally safe, can conserve the available resources, and also may mitigate the problems raised by synthetic chemicals. The allelo-chemicals are secondary metabolites produced by plants, which are the byproducts of the primary metabolic process. These allelo-chemicals may be stimulatory, inhibitory, or may have no effect on the growth of the other plants. It has been observed in the present study that foliar extracts of *Leucaena leucocephala* showed an inhibitory effect on the germination of the test crop maize. The results revealed that at different concentrations of *Leucaena leucocephala* foliar extract, caused a significant inhibition in germination and growth behavior of *Zea mays* L. seedlings. Minimum germination and growth occurred in 100 % concentration, and an increase in extract concentrations result in a decrease in the germination. Bioassay also depicted that this inhibitory effect was proportional to the concentration of the extract as the higher concentration having a lesser stimulatory effect or vice versa. The phytochemical analysis of the secondary metabolites from foliar extracts of *Leucaena leucocephala* L. showed the presence of tannins, saponins, phenols, alkaloids, and flavanoids. Among various extracts, the presence of methanol extract was found in a significant amount of phytochemicals, followed by the aqueous and ethanol extracts. Leaves showed a significantly higher amount of the allelochemicals.

Keywords : allelopathic effect, germination /growth behavior , foliar extracts, *Leucaena leucocephala* , *Zea mays* L.

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