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ALLELOPATHIC ACTIVITY GUIDED FRACTIONATION OF METHANOL EXTRACT OF *Cassia Alata L.*

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Plants are known to produce an incredible diversity of secondary metabolites with a wide range of biological activities. As a continuation of our research work on allelopathic activity studies of some medicinal plant extracts, methanol extract of the *Cassia alata* was further investigated with the hope of discovering new eco-friendly natural herbicides. Lettuce seed germination bioassay, which is widely used in the detection of allelochemicals, throughout the world was carried out to examine the active fractions for seed germination inhibitory activity. In this study, the normal lettuce seed germination assay was slightly modified to suit our needs. Methanol extract (25 g) was chromatographed on a column of silica gel (50 g, Merck Kieselgel 60, 230-400 mesh ASTM) using n-hexane, ethyl acetate and methanol as eluents to give fifteen major fractions F-1 to F-15. Out of 15 fractions and crude tested, F-11 (80% -100% ethyl acetate in hexane), F-12 (0% - 10% methanol in ethyl acetate) and crude showed statistically potent seed germination inhibitory activities (0 % germination). This might be due to the allelochemicals present in the *Cassia alata*. F-9 (45% to 65% Ethyl acetate with hexane) has also shown significant inhibition activity with 12.5% germination. Even though other fractions have not inhibited the lettuce seed germination at a significant level, reduced hypocotyl lengths were observed for all the fractions, except the control (water, 100 % germination with 7.25±1.41 mm) and F-3. Further studies are in progress for isolating active ingredients from the above active fractions.

Keywords: *Allelopathic activity, Cassia alata, column chromatography, lettuce seed germination bioassay*