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Effects of *Mimosa pigra* and *Panicum maximum* extracts on the productivity of *Aloe vera*

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Aloe vera has a huge market demand locally and internationally for numerous uses. Organic *A. vera* farming is popular among farmers. Nutrition rich invasive alien plant species can be used for the preparation of organic liquid fertilizers (OLF). In this study, extracts of *Mimosa pigra* and *Panicum maximum*, and *Musa* fruit peels were used to prepare organic liquid fertilizer and it was conducted to evaluate the effects of three concentrations of the above organic liquid fertilizer on the growth and yield performance of *A. vera* under field conditions. Overall, there were five treatments as T1 - (0.50 g/mL of OLF), T2 - (0.75 g/mL of OLF), T3 - (1.00 g/mL of OLF) with TC (control - no fertilizer), and TS (standard - used cow dung, the typical fertilizer applied by farmers for *A. vera*). The pots were filled with a soil medium that contained sand, garden soil and compost (3:1:1 ratio). *A. vera* plants were placed under the shade of *Gliricidia sepium* to provide partial shade conditions. The growth and yield parameters of *A. vera* plants measured were plant height, leaf length, leaf width, leaf thickness, the volume of leaves, number of leaves, number of offsets, fresh weight of leaves, fresh gel weight of leaves, and percentage of gel recovery. Data were collected four months after transplantation and the data were statistically analyzed using one-way ANOVA. The T2 showed the significantly highest growth performances: length of leaves (26.34±2.21 cm), the volume of leaves (14.76 cm³±3.37), fresh weight of leaves (33.80±4.55 g/plant), fresh gel weight of leaves (24.40±4.50 g/plant), and percentage of gel recovery (67.90%±5.57) of *A. vera* (One-way ANOVA). These values significantly differed from TC and growth performance higher in *A. vera* with the application of all concentrations of organic liquid fertilizer compared to TS that used by farmers. Since T2 resulted in the highest performance for the economically important growth parameters of *A. vera*, the study revealed that it is the best cultivation practice for *A. vera*. The results have confirmed that *M. pigra* and *P. maximum* can be used for the formulation of organic liquid fertilizer for effective growth of *Aloe vera* as an eco-friendly, low-cost organic liquid fertilizer for the growers.

Keywords: *Aloe vera*, Growth and yield, Invasive alien plant species, Organic liquid fertilizer