29. Growth performance of floating aquatic weeds *Salvinia molesta* D. S. Mitchell., *Pistia stratiotes L.*, *Lemna perpusilla* Torrey., *Azolla pinnata* R. Br. Grown under different nutrient levels

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This experiment was aimed to understand the effects of competition among four free floating aquatic plants *Salvinia molesta D. S. Mitchell., Pistia stratiotes L., Lemna perpusilla* Torrey. and *Azolla pinnata R. Br.* The objective was to estimate the growth performance in terms of plant cover of each species grown in mono and mix culture under different nutrient conditions (zero, low, medium and high).

Aquatic plants were introduced into plastic basins filled with tap water in such a way that the cover of each species consisted of one species only (monoculture), all species covering more or less equal area, one species having a cover two times and four times than that of the others respectively. The experiment was conducted according to the randomized block design with 13 treatments in 4 blocks each with 3 replicates. Thirteen treatments had different coverage combinations and the four blocks represented different nutrient levels, zero (control), low, medium and high induced by Supernex-20,20,20 (UNIKEM) fertilizer. Digital images of plant cover were obtained initially and continued for 4 months. Cover of plants was determined by quantifying digital images and the effects of competition on plant cover at different nutrient levels was determined using Analysis of Variance (ANOVA).

Growth performance of species in monocultures indicated their nutrient preferences. *Pistia stratiotes* grew well with nutrient enrichment while *Lemna perpusilla* prefered a low nutrient level for survival. *Salvinia molesta* and *Azolla pinnata* exhibited thier tolerance to a wide range (zero to high level) of nutrients. When all species were in association *P. stratiotes* was the most dominating plant in nutrient enriched situations while *L. perpusilla* was unable to survive in nutrient rich conditions even when it had a large cover than that of the others. Growth of *A. pinnata* was significantly high at medium level of nutrient enrichment in mixed culture when species were grown in same proportions. It also thrived better at a low nutrient level when the initial cover was twice than that of the others. *Salvinia molesta* also exhibited a better growth when its initial cover was higher over the others.

The overall growth performances of test plants were a result of combined effects of intra and inter specific competition. Nutrient preferences of free floating aquatic plants seem to contribute greatly towards their competitiveness.