

EVALUATION OF BIOMASS PRODUCTION AND POLLUTANT UPTAKE OF SELECTED PLANT SPECIES IN CONSTRUCTED FLOATING WETLANDS

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Constructed floating wetlands (CFW) is an innovative technique to control pollution in urban lakes. A study was conducted to assess biomass production and pollutant uptake by *Canna iridiflora* and *Cyperus alternifolius* in CFWs in Kandy Lake, Kandy, Sri Lanka. Tillers of both plants (20 cm in height) were potted in floating PVC frames in the lake. Coconut coir was used as the media for each pot. The reference experiment was conducted by maintaining terrestrial conditions nearby the lake. Reference plants were arranged in polyethylene bags and kept to represent the terrestrial condition and watered using lake water. In both experiments, plant samples were collected at weekly intervals of up to 8 weeks by uprooting. The height, fresh and dry weight of shoots, and roots were measured. Total N and total P were also measured in shoot and root samples. The data were statistically analysed using R software. Results indicated that the biomass of both shoots and roots of *Canna iridiflora* were significantly higher ($p < 0.05$) than *Cyperus alternifolius* in both CFWs and reference. The shoot growth was higher in CFWs, and root growth was higher in terrestrial conditions in both plants. The total N and total P contents in shoots were higher than the roots in two plants for both tested conditions. The uptakes of N ($23.28 \text{ mg plant}^{-1}$) and P ($31.09 \text{ mg plant}^{-1}$) were higher in *Canna iridiflora* compared to N ($14.91 \text{ mg plant}^{-1}$), P ($7.89 \text{ mg plant}^{-1}$) uptake by *Cyperus alternifolius*, in CFW over the terrestrial conditions. It can be concluded that the growing *Canna iridiflora* in CFW is one of the best solutions to mitigate the pollution of urban lakes.

Keywords: Biomass, Constructed floating wetlands, Nitrogen, Phosphorous, Urban lakes