PHYTOREMEDIATION OF AMMONIACAL NITROGEN

IN WASTEWATER USING *Eichhornia crassipes*:

TOLERANCE LIMIT AND pH STUDY

WINNIE TING HUONG TIEN¹, IVY AI WEI TAN¹*, SHANTI FARIDAH SALLEH¹ and

NORAZIAH ABDUL WAHAB¹
ABSTRACT

High ammoniacal nitrogen (AN) in industrial effluent must be treated before final discharge to prevent eutrophication phenomenon. Phytoremediation is recommended to be a better solution to treat wastewater with high AN content due to its cost-effective, environmental friendly and sustainable characteristics. Water hyacinth (Eichhornia crassipes) has been widely applied in phytoremediation technology to remove various types of pollutants. In this study, AN
synthetic wastewater with varied AN concentrations of 10-200 mg/L was prepared to conduct tolerance limit test of water hyacinth for 10 days. The effect of pH on the physico-chemical parameters of AN synthetic wastewater and water hyacinth biomass growth was also investigated. Under sunlight exposure, it was found that water hyacinth was able to survive up to 150 mg/L of AN concentration for a duration of 10 days. The results showed that pH factor posed a significant impact on biochemical oxygen demand (BOD5) and biomass growth of water hyacinth whereas less significant impact was exhibited on chemical oxygen demand (COD) and total suspended solids (TSS). Overall, water hyacinth has been shown to be a feasible macrophyte for phytoremediation of AN in wastewater.

**Key words:** Phytoremediation, Water hyacinth, Ammoniacal nitrogen, Macrophyte