Abstract

The treatment of pool water, whether for recreational or sporting purposes, by phytoremediation is widely applied. This work evaluates two artificial vertical flow wetlands, one on a real scale and the other on a laboratory scale, which have been planted with *Typha domingensis*, for the treatment of pool water in the climatic conditions of the city of Santiago de Cuba. When the hydraulic load applied to the real scale wetland was less than 0.25 m$^3$ m$^{-2}$ d$^{-1}$, the levels of organic and microbiological contamination in the pool were below the maximum limits allowed by Cuban standards. At a laboratory scale, the presence of vegetation favoured the elimination of nitrogen compounds (nitrates and ammonium) and organic materials (BOD and COD). This behaviour is explained by the presence of processes of assimilation of organic compounds, or by the action of microorganisms associated with the rhizome of plants, which establish a symbiotic mechanism favourable to phytodepuration. The minimum concentration of ammonium obtained in outflow from the laboratory-scale reactor without vegetation reached a value of 2.15 mg m$^{-3}$, which is within the limits allowed by the sanitary regulations.

**Key words:** artificial wetlands, natural swimming pools, phytoremediation, sub-surface flow, *Typha domingensis*