

Carbon sequestration potential of *Typha angustifolia* in Embilikala lagoon in Bundala wetland of Southern Sri Lanka

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Carbon sequestration is one of the major functions of wetlands. Majority of carbon stored in wetland are found in soils as it has a capacity to hold up to 200 times more carbon than the surrounding vegetation. As Bundala wetland (BW) had been visited by a variety of migratory birds in significant numbers, it was declared as the first Ramsar wetland in Sri Lanka. Recent observations unveil that *Typha angustifolia* which is considered as a nauseous plant, is extensively distributed in litoral zone of Embilikala lagoon. This study seeks to investigate the carbon sequestration potential of *T. angustifolia* in Embilikala lagoon in the BW. The lagoon was stratified into three sections as Embilikala North (EN), Middle (EM) and the South (ES), that spreads from inlets to outlet. Soil samples were collected randomly from two depths (0-15cm, 16-30cm, from surface) from areas covered by *T. angustifolia* in each section. Soil samples were also collected from areas without *T. angustifolia* plants, as the controls. Carbon contents were determined by wet oxidation with $K_2Cr_2O_7$ followed by measuring absorbance using UV-Visible spectrophotometer. Results revealed that *Typha* soil contains more carbon (EN=205.55±4.08 t C/ha, EM=102.36±2.42 t C/ha, ES=95.11±0.55 t C/ha) than bare soil (EN=36.25±1.09t C/ha, EM=45.56±0.66t C/ha, ES=46.77±3.07 C/ha) in all sections. *Typha* soil in EN was found to be the section that contains the largest stock of carbon. Bare soil contains more carbon in 0-15cm depth than 16-30cm in all sections. *Typha* soils contain more carbon in 0-15cm depth in EM and ES section while it contains more carbon in 16-30cm depth in EN section. These results implicates that even though *T. angustifolia* is considered as a nauseous plant, its distribution in Embilikala lagoon has a positive impact on carbon retention by the Bundala wetland soils.

Keywords: carbon sequestration, *Typha angustifolia* and Bundala wetland

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