

Assessment of the Impact of *Azolla pinnata* at Demodara Water Treatment Plant Intake Reservoir

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Demodara Water Treatment Plant intake reservoir is located in between Demodara and Badulla cities about 12 km upstream in Badulu Oya from Badulla. An invasive growth of floating macrophyte was observed from third week of January 2018. Water quality of treatment plant intake reservoir was studied by analyzing the reservoir water with the presence and the absence of the *Azolla* mat, to find whether there was any change in the water quality with the mat. Water quality close to the dam, lake at about 1 km upstream from the dam and upstream flowing water (about 500 m upstream from the lake) were analyzed in different depths (close to the dam 6.5 m and upstream lake 1 m depth). pH, turbidity, electrical conductivity, dissolve oxygen was analyzed on site and NO₃⁻, Total PO₄³⁻, SO₄²⁻, Cl⁻ and F⁻ was measured using Ion Chromatograph and relative abundance of phytoplanktons were estimated using plankton nets (20 µm) and microscope with the presence of *A. pinnata* mat and following day of removal of *A. pinnata* mat. As a part of the study, two models were observed inserting 20 l of intake reservoir water and 22 g of *Azolla* for one model. pH, turbidity, conductivity was monitored for seven weeks. pH was decreased in the model with *Azolla*. Conductivity and turbidity did not show a significant change. pH decrement and Total PO₄³⁻, Phytoplankton increment was observed with the absence of the mat in Demodara reservoir. All the water quality parameters in treatment plant raw water were within the drinking water standards (SLS 614:2013), with the presence of *Azolla* mat. The *Azolla* didn't appear after manual removal. Therefore, further studies and implementing a Water Safety Plan by proper catchment management is needed.

Keywords: Floating macrophyte, *Azolla pinnata*, Phytoplanktons, Plankton nets, Water safety plan