

ASSESS THE IMPACT OF *Cyperus rotundus* ON IMPROVING WATER QUALITY

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Water quality refers to chemical, physical, biological, and radiological characteristics of water, which determine its suitability for various uses. This study explores a traditional well water purification method that uses six plant materials to purify water, so that water reaches safe drinking parameters. Among the six plants, impact of *Cyperus rotundus* (Musta) tubers are focused here. According to previous research, *Cyperus rotundus* was found to reduce fluoride contents of water, biochemical and chemical oxygen demands in liquid solutions, also to reduce heavy metal levels in contaminated soils. In this study, water samples were collected from a well located near a chemical dependent paddy field in Galle district and immersed with *Cyperus rotundus* tubers. Various pre-dipping durations, dipping durations, tuber sizes and weights were used for the laboratory tests. Parameters such as pH, total dissolved solids (TDS), specific gravity, chloride ion concentrations and alkalinity were analyzed to evaluate the impact on water. The results showed that *Cyperus rotundus* could improve the pH up to safe drinking water pH ranges according to the WHO, reduce TDS and chloride ion concentrations in water. When used 48 hours pre-dipped 1.5g of whole tubers of *Cyperus rotundus* for 24 hours in 175ml of water, the TDS reduced 32.81%, chloride reduced 19.57%. And when used 48 hours pre-dipped 3.5g of whole tubers for 48 hours in 175ml of water, the TDS reduced 80.47% and chloride reduced 13.04%. In conclusion, *Cyperus rotundus* has potential to improve water quality. The parameters came closer towards the WHO safe drinking water parameters.

Keywords: *Cyperus rotundus*, *Musta*, Water, Traditional Water treatment method, Well water purification