

## ABSTRACT

Rice is the main food of Sri Lanka. So the paddy cultivation has been developed all over the island even from the past. As a livelihood industry the paddy cultivation is being in several districts of island among them Anuradapura and polonnaruwa districts plays a major role in paddy cultivation.

Removing most outer layer (husks) and the bran from paddy to convert rice is the needness of install rice mills. As a result of the process establishment of rice mills at paddy cultivation areas are already done. The process what follows to convert paddy to rice has introduced to milling processes i.e. Wet process rice mills and dry process rice mills.

With compare to the dry process rice mills the environmental pollution occur with related to wet process rice mills is higher. However establishment of wet process rice mills in Polonnaruwa district is higher with compare to other district in the island. Among them a large number of wet process mills are located at Muslim Colaniya grama niladari disvision of Thammankaduwa divisional secretary division of Polonnaruwa district.

*Almost all the wet process rice mills that situated at Muslim Colaniya gramaniadari division are functioning with environmental pollution and without wastewater treatment. So higher environmental pollution was took place at the particular area and caring out a formal study to identify an affordable wastewater treatment system for wet process rice mills is an essential requirement.*

The study was carried out at randomly selected 15 wet process rice mills situated at Muslim Colaniya gamaniladari division in Thamankaduwa divisional secretary division area. The collected 15 samples were checked for pH, BOD, COD, TSS, Turbidity, Conductivity, Salinity, Nitrate and phosphate levels.

Through the evaluation of results it could realize that a simple technological system could apply to treat wastewater occur from such industries. In such case simple technological system for wastewater treatment will affordable among industrialists.

Collected wastewater samples were prepared in laboratory and were purified through aerobic digester. The results that extract from the experiment i.e. pH, BOD, COD, TSS, Turbidity, Conductivity, Salinity, Nitrate and Phosphate were observed separately. Within a 24 hour time period it could observed that BOD and COD levels of wastewater were decrease from 50% and 60% respectively. Also the comparison of results with actual samples of rice mills it could realize that after 24 hours period these levels are reached to permissible level to release to the environment.

Therefore it could recommend the following simple technological wastewater treatment system for small scale wet process rice mills and the construction cost is even low with compare to other treatment systems will encourage industrialists to establish particular treatment system that is collection tank, aeration tank and constructed wetland.