Parboiling is a process used to improve the milling characteristics of paddy. The wastewater generated from soaking operation in parboiling process has pollutant levels higher than the discharge standards. Lab scale experiments were carried out to remove Chemical Oxygen Demand (COD) in soak water resulting from hot soaking of a red rice variety named LD 356. Combined treatment of this wastewater using biological treatment with aeration and coagulation was able to remove 95.48% COD while coagulation and adsorption collectively removed 92.58%. The combination of adsorption and aquatic plant based treatment removed 90.64% COD in which adsorption alone removed 90%.