

Effects of Effluent Changing Interval on Milling Yield, Hydration Profile, Physical Properties and Effluent Characteristics of Two Different Rice Varieties

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Parboiling is the hydrothermal treatment applied to the paddy grains before milling in order to increase the milling recovery. Parboiling process consist of three stages such as soaking, steaming and drying. In this study, the effects of effluent changing interval on milling yield of two different paddy varieties were estimated. In addition, the characteristics of effluent and hydro profile of paddy also were evaluated. Paddy varieties of BG 360 and *Addakari* were soaked in water at ambient temperature. Two experimental setups were designed as first setup designed for both varieties with changing the effluent at each 12 hours interval and second for at 24 hours interval within 48 hours duration. At every 6 hours interval, effluent samples were collected for characterization. After 48 hours of soaking, paddy grains were steamed till few of their hulls split off. It was then cooled and sun dried until the moisture reduced up to 14 %. Analytical grade de-husking and polishing machines were used for the milling. In the milling yield analysis, *Addakari* rice variety with changing the effluent at 12 hours interval resulted in higher brown rice percentage, total milled rice percentage and degree of milling percentage as 81.77, 73.66 and 90.08 % respectively. The higher head rice percentage was 68.26 % to the same variety but with changing the effluent at 24 hours interval. The rice variety BG 360 with effluent changed at 24 hours interval yielded higher hull percentage as 21.66 %. The whiteness value of BG 360 with changing the effluent at 12 hours interval was higher than other treatment and that of other variety as 27.8 %. Due to the larger surface area of BG 360 rice variety, it resulted in higher hydration profile. When considering the effluent characteristic with different changing interval of effluent, the treatment with time interval of 12 hours showed lesser level contaminants in the effluent, which can be utilized for the secondary purposes like irrigation. According to this study, it was identified that effluent changing interval, influences the milling yield, hydration profile and physical properties of different rice varieties.

Keywords: Drying, Effluent, Head rice percentage, Milling yield, Parboiling, Soaking