

Determination of Important Physical Properties and Water Absorption Capacity of Medium Type Improved Paddy Varieties of Sri Lanka

G.C. Thilakarathna^{1*}, S.B. Navarathne¹, I. Wickramasinghe¹

¹Department of Food Science and Technology, Faculty of Applied Sciences,
University of Sri Jayawardenepura, Gangodawila, Nugegoda, Sri Lanka.
gayanthilakarathna@gmail.com^{1*}, *sbnava@sci.sjp.ac.lk*¹, *indiraw@sjp.ac.lk*¹

Abstract: Four popular paddy varieties in Sri Lanka, BG 300, BG352, BG366 and AT307, were experimented in order to determine the important physical properties and water absorption capacities. Axial dimensions (length, width, thickness), 1000 grain mass, geometrical mean diameter, surface area, volume, sphericity and aspect ratio were determined as the physical properties of paddy varieties. According to the research outcome, most of the physical properties were significantly different ($p < 0.05$) among the varieties while some similarities ($p > 0.05$) were also observed. To investigate the water absorption capacity of different paddy varieties in terms of moisture gain, the paddy varieties were immersed in hot water at 70 °C for 5 hours. Samples were drawn from respective paddy variety for every 30 minutes in order to measure the moisture absorption. According to the results, during the initial stage of soaking, all paddy varieties illustrated rapid moisture increment. Afterward the rate of moisture increment was gradually declined and attained to the saturation point, where the moisture variations were insignificant ($P > 0.05$) for paddy varieties. Until reaching to the saturation point, moisture absorption pattern of paddy varieties were significantly different ($p < 0.05$). Results indicated that highest and lowest moisture increment was recorded by BG300 and BG366 respectively. The soaking time and varietal differences were also significantly influenced ($P < 0.05$) on water absorption capacities.

Key words: Improved paddy varieties, Moisture absorption capacity, Moisture content, Soaking time, Saturation point