

PHYSICO-CHEMICAL AND SENSORY QUALITY CHARACTERISTICS OF SELECTED ADVANCED RICE LINES

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This study was undertaken to determine physical, milling, cooking and sensory properties of sixteen advanced rice lines (Bg15-1853, Bg15-1855, Bg15-1856, Bg15-1857, Bg15-1900, Bg15-1901, Bg15-1903, Bg15-1904, Bg15-1905, Bg15-1907, Bg15-1966, Bg15-1967, Bg15-1972, Bg15-1973, Bg15-1985 and Bg15-1986) and four improved rice varieties (AT306, AT309, AT373 and AT405) at the Rice Research and Development Institute, Bathalagoda, during the 2015 *yala* season. The physical properties including grain dimensions, chalkiness, translucency, moisture content and thousand-seed weight were measured. Brown rice% and total milled rice% were estimated as milling properties. Amylose content, gelatinization temperature, gel consistency, water uptake ratio, solids in cooking water, cooking time and grain elongation during cooking were determined as cooking properties. Sensory properties of rice including the significance of cooked aroma, taste, cohesiveness, tenderness and appearance were determined by thirty untrained panelists. There was a significant variation ($p < 0.05$) among the twenty rice varieties/lines for all the traits evaluated. The data showed that all the rice lines/varieties were long and slender. Bg15-1856 had less chalkiness and high translucency. The best moisture content was recorded in Bg15-1903 and the highest thousand-seed weight was reported in Bg15-1907 and Bg15-1904. The highest brown rice% and total milled rice% were observed in AT306. Rice samples of Bg15-1966, AT373, Bg15-1986, Bg15-1903, AT306, Bg15-1904, Bg15-1967, Bg15-1905 and Bg15-1985 had intermediate amylose contents. Intermediate gelatinization temperature was observed for Bg15-1905, Bg15-1857, Bg15-1903, Bg15-1985 and Bg15-1986. The soft gel consistency was indicated by AT405, AT309 and Bg15-1905. AT405, Bg15-1985, Bg15-1986 and AT306 had better sensory properties. The results indicated that improved rice lines Bg15-1985, Bg15-1986, Bg15-1904, Bg15-1905, Bg15-1972, Bg15-1903, Bg15-1855, Bg15-1857, Bg15-1900 and Bg15-1907 showed better quality parameters indicating the success of the new breeding program.

Keywords: Chalkiness, Gelatinization temperature, Rice quality, Translucency