VISCOAMYLOGRAPHIC, MICROSCOPIC AND CONSUMPTION CHARACTERISTICS OF PARBOILED RICE

The preference for white or parboiled rice is a personal question related to consumption traditions. Parboiling increases the milling potential and therefore the industrial yield. However, consumption is still lower than that of white rice. To verify the effect of parboiling on the viscoamylographic, microscopic, cooking behaviour and sensory properties of parboiled and white rice were compared. High amylose contents rice grain from the southern region of the state of Rio Grande do Sul, Brazil, were used. The grains belonged to the long and long-fine (needle) classes, according to the official Brazilian classification. Parboiling was carried out according to hydration isotherms previously defined by a method developed in the Grain Post-Harvest and Industrialisation Laboratory. The parboiling process caused an increase in gelatinization temperature in Rapid Visco Analyser (RVA). After gelatinization, starch retrogradation occurred during the drying operations. In this irreversible process, the amylose formed a complex and became unavailable for retrogradation, affecting the viscoamylographic characteristics of the starch. Breakdown curves were different for both samples and the results for the parboiled ones were probably due to the modification of the starch microstructure, as observed with a Scanning Electron microscope (SEM). The parboiling process increased the gravimetric yield, water absorption and cooking time. With respect to the sensory properties, parboiling intensified the colour, odour, flavour, grain looseness and firmness, making them free of the sticky appearance typical of white rice. These attributes were intensified on parboiling, since organic substances migrate from the periphery of the grain to the centre.