

CHANGES IN MACROMOLECULES OF RICE DURING MALTING

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Cereal malts are rich in enzymes and soluble materials, which could be used in the food industry. Several studies were made by others on malting of rice, wheat, barley, corn, oat, and millet. This paper presents the changes in moisture, reducing sugar, total soluble sugar, total carbohydrate, total protein, soluble protein contents and endogenous amylase and protease activities, during malting of rice. Unpolished rice grains ("Mottaikarupan" variety) were steeped in distilled water containing $0.1 \text{ gl}^{-1} \text{ Na}_2\text{S}_2\text{O}_5$ for 12h, then drained the steeped water and allowed the grains to germinate in a moistened bag wetted with $0.15 \text{ gl}^{-1} \text{ Na}_2\text{S}_2\text{O}_5$ and kept in dark at 35°C for 6 days. Each day, the moisture, reducing sugar, total soluble sugar, total carbohydrate, total protein and soluble protein contents and enzyme (malt amylase and protease) activities, in the germinated grains were estimated with respect to their dry weight. Moisture content of about 39% was sufficient to initiate germination. Apart from the decrease occurred immediately upon steeping, an appreciable drop in total carbohydrate was observed from the third day. Reducing and soluble sugar contents were decreased up to 12h and then increased steadily, while soluble protein content was increased from the second day of germination. The DE of malt powder was increased from 0.63 (0 h) to 2.76 (6th day), during germination. Appreciable increase in malt enzyme activities were observed from the second day of germination. Steep water analysis revealed, the increase in the release of the soluble materials with steeping time.