

Title Effect of storage temperature on cooking behaviour of rice
Author Zhongkai Zhou, Kevin Robards, Stuart Helliwell and Chris Blanchard
Citation Food Chemistry, Volume 105, Issue 2, 2007, Pages 491-497
Keywords Rice; Storage; Cooking; Residual cooking water; Amylose leaching; Texture

Abstract

The differences in the properties of residual cooking water and the textural profile of cooked rice grain following storage at 4 °C and 37 °C were examined. The higher temperature storage led to greater water uptake, reduced pH and turbidity of residual cooking liquid. The solids content in the residual cooking water also significantly ($p < 0.001$) decreased following storage at 37 °C compared to 4 °C storage. Textural profile of the cooked rice grain also differed for rice grains under the two storage temperatures. Hardness increased ($p < 0.01$) and adhesiveness reduced ($p < 0.01$) following storage at 37 °C compared to 4 °C. Moreover, analysis of the hot-water soluble fraction suggested that storage at 37 °C decreased the leaching of starch components, particularly amylose. The cooked rice grains were also visualized using scanning electron microscopy, and the cooked rice following storage at 4 °C showed smoother surfaces than that of the cooked rice following storage at 37 °C.