Cereal Chemistry
Bimonthly
ISSN 0009-0352

Abstract

January/February 2011, Volume 88, Number 1
Pages 56-63
http://dx.doi.org/10.1094/CCHEM-10-09-0132

Storage Stability of Flour-Blasted Brown Rice

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Brown rice was blasted with rice flour rather than sand in a sand blaster to make microperforations so that water could easily penetrate the brown rice endosperm and cook the rice in a shorter time. The flour-blasted American Basmati brown rice, long-grain brown rice, and parboiled long-grain brown rice samples were stored in Ziploc storage bags under atmospheric conditions and in vacuum-packed bags. They were periodically tested for over 10 months for changes in water absorption, free fatty acid (FFA), peroxide value (POV), viscosity changes of flour using the Rapid ViscoAnalyser (RVA), and texture of whole cooked kernel using a texture analyzer during cooking. Flour-blasted brown rice absorbed less water but needed less cooking time than its counterpart that was not flour-blasted. There was an increase in FFA, POV, peak viscosity (PV), final viscosity (FV), breakdown viscosity (BD), and setback viscosity (SB) during storage of flour-blasted brown rice for 300 days, but no change was observed in texture (hardness, gumminess) and water absorption. The combined coefficient of correlation (including all types of rice) between FFA and FV is $r = 0.86$ and between FFA and SB is $r = 0.90$ at $P < 0.0001$.

Cited by

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Harmeet S. Guraya
Cereal Chemistry 2011, Volume 88, Number 1: , 51-55
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