

3rd International Conference and Exhibition on Food Processing & Technology

July 21-23, 2014 Hampton Inn Tropicana, Las Vegas, USA

Effect of rice flour particle size on gluten-free rice bread quality

Tae-Young Kang and Sanghoon Ko
Sejong University, Korea

The objective of this study is to investigate the effect of flour particle size on gluten-free rice bread. Three different rice flours (Seolgaeng, Samkwang and Boramchan) were produced by dry-milling and classified 100, 200 and 300 meshes. In order to make gluten-free rice bread, hydroxypropyl methylcellulose (HPMC) was used as gluten substitute. The damaged starch content of Seolgaeng (SG), Samkwang (SK) and Boramchan (BRC) with passed 100, 200 and 300 meshes were measured as 4.8, 7.8 and 9.0 (SG), 5.5, 10.4 and 21.6 (SK), 6.8, 10.6 and 20.3 (BRC) respectively. Electron micrography revealed that SG grain possessed round-shaped starch granules with larger void space among the starch granules. Hardness of SG, SK and BRC kernel was measured to be 9.23, 10.87 and 15.1 respectively. As a result the SG could be milled with containing low damaged starch content under dry-milling condition. The volume of gluten-free rice breads prepared with SG, SK and BRC flours passed 100, 200 and 300 meshes was measured to be SG; 425.5 mL, 446 mL and 173.3 mL, SK; 356.6 mL, 413.5 mL and 158.3 mL and BRC; 347.6 mL, 288.8 mL and 153.6 mL. The SG which contains low damaged starch was the best cultivar for making gluten-free rice bread. The dough prepared with rice flour which passed 300 meshes was hardly fermented due to increase of damaged starch content resulting in small volume. The rice breads with rice flour which passed 200 meshes were prepared in good appearance and texture like wheat flour bread. In conclusion, the rice cultivar with round-shaped starch granules is able to mill reducing the starch damage and rice flour with passed 200 meshes is determined to optimum particle size.

Biography

Tae-Young Kang graduated from Sejong University in Korea, and then he earned degree in food science and technology. Now, he is working on Master's degree course in food nanotechnology laboratory at Sejong University. He has interest in gluten-free food product and food nanotechnology.

kty8986@gmail.com