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Comparison of quality property between fresh cooked rice and re-heated cooked rice

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Abstract

The objective of this study was to evaluate difference of quality properties of between fresh cooked rice and re-heated cooked rice after retrogradation. Nine rice varieties raised by NICS were compared the properties of physicochemical, texture, sensory evaluation, toyo glossiness value, pasting properties. Among nine rice cultivars, the changes of weight and length-width ratio of after soaking as well as cooking showed how water absorbed in each rice granule. The amount of water absorption after soaking was highest in Wolback (semi-waxy), Hiami and lowest in Samgwang, Seonpum, Ilpum. After cooking, the amount of water absorption was high in Dasan 1 and Andabyeo, however low in Ilpum. In the length-width ratio after soaking, Wolback (semi-waxy cultivar) and Anda (indica cultivar) increase their volume relatively as their shape are while others increased more in length than width. Among cooked rice, the highest value of length-width ratio shows in Anda, Dasan1, Hiami and Seonpum, the Wolbak was similar to that of non-glutinous rice. After cooking, the others stored at 10°C for 16 hours for retrogradation (imitated at convenience store). Then re-heated using by microwave. Pasting properties were considerably affected by storage temperature and periods of rice. The setback showed in the following order: Wolback (-92.25 RVU, the lowest retrogradation) < Seonpum (-35.20) < Chindle (-22.08) < Jungsanggold (-21.98). Toyo glossiness value of cooked rice showed in the following order: Chindle (82.40) > Samgwang (79.43) > Hiami (79.23). Sensory evaluation of re-heated rice of Jungsanggold, Samgwang, and Chindle were 78.97, 78.36, and 77.35, respectively. Hardness, elasticity, and toughness of re-heated rice ware increased compared to cooked rice, whereas cohesiveness was decreased. Hardness and elasticity is higher in Seonpum, Dasan1 and Hiami, toughness is higher in Jungsanggold, Samgwang and Wolbak. Cohesiveness of Jungsanggold and wolbak showed higher than others.

Keywords: cooked rice, re-heated, retrogradation, texture, sensory evaluation, toyo glossiness, pasting properties

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