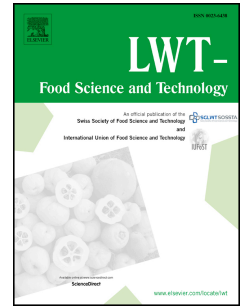


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Effect of pressure-soaking treatments on texture and retrogradation properties of black rice

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1 **Effect of pressure-soaking treatments on texture and retrogradation**
2 **properties of black rice**

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11 Running Title: Texture and retrogradation of cooked black rice with pressure-soaking

12
13 **Abstract:** Cooking properties and retrogradation process of black rice (BR) with high hydrostatic
14 pressure (HHP, 200-400 MPa/15 min) soaking were evaluated in this study. Results showed that
15 the water absorption capacity of BR with HHP soaking was higher than that of control one. The
16 HHP soaking also generated the lower leached amylose and hardness, while the higher springiness,
17 cohesiveness, and resilience for cooked BR. In addition, the DSC data revealed that the enthalpy
18 of cooked BR was influenced by HHP treatment, and the degree of retrogradation was decreed
19 from 91% to 71% (storage for 21 days). Furthermore, the analysis of X-ray diffraction (XRD)
20 revealed that the HHP treatment weakened the intensity of the peak of the 14 day-retrograded
21 samples and decreased the relative crystallinity from 19.92% to 15.94% (storage for 21 days).
22 These findings suggest that the HHP soaking could be a potentially applicable pretreatment for
23 producing cooked BR with high quality.

24 **Keywords:** High hydrostatic pressure; Amylose leaching; Crystallinity; Differential scanning

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