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Effects of different treatments on the physicochemical, protein, pasting, dynamic rheological behaviour, SDS-PAGE, amino acid profile, Fourier-transform infrared spectroscopy (FTIR) of rice bran and rice bran protein isolates from treated sharbati rice

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Objective: The objective of the present study was to study the effects of treatments on the physicochemical, protein, pasting, dynamic rheological behaviour, SDS- PAGE, amino acid profile and Fourier-transform infrared spectroscopy (FTIR) of rice bran and rice bran protein isolates from treated Sharbati rice.

Methodology: Rice (*Oryza sativa*) bran of Sharbati rice was given three different treatments. Sharbati Golden Sella (SGS); Shrabati Steam (SS); Sharbati White Sella (SWS) was defatted using n-hexane at 1:10 ratio. The Protein isolates (PI) from defatted bran was prepared. Protein content of the isolates was determined by estimating nitrogen content following Kjeldahl method. A protein was characterized using Sodium dodecyl sulphate polyacrylamide gel electrophoresis (SDS PAGE). A thermal property was evaluated using Differential Scanning Calorimetry (DSC). Fourier-transform infrared spectroscopy (FTIR) and Dynamic rheological behaviour of treated rice bran was studied and compared. The amino acid composition was analysed by using amino acid analyser.

Results & Discussion: The present study was evaluated to see the effects of treatment on the physicochemical, protein content, electrophoresis profile, amino acid composition, DSC, FTIR and dynamic rheometer behaviour of bran and protein isolates of Shrabati rice. Amongst the three different treated Sharbati rice, Sharbati Golden Sella rice bran showed a highest protein content and essential amino acids than Sharbati Steam and Sharbati White Sella. The rice brans of treated Sharbati Rice showed a different rheological behaviour, antioxidant activity and other physicochemical properties.

Conclusion: Sharbati Golden Sella rice bran was the best amongst the treated Sharbati Rice bran.

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