



## EFFECT OF HYDROTHERMAL TREATMENTS ON PASTING PROPERTIES OF PARBOILED BROWN RICE

Kaur A<sup>1</sup>, Suresh Bhise<sup>2✉</sup>, Mandeep Kaur<sup>1</sup>

<sup>1</sup>*Department of Food Science and Technology, Punjab Agricultural University, Ludhiana*

<sup>2</sup>*College of Food Processing Technology & Bioenergy, Anand Agricultural University, Anand, Gujarat*

✉[sureshbhise\\_cft@yahoo.co.in](mailto:sureshbhise_cft@yahoo.co.in)

<https://doi.org/10.34302/crpjfst/2021.13.3.3>

---

### Article history:

Received:

22 October 2020

Accepted:

5 July 2021

---

### Keywords:

*Brown rice;*

*Packaging;*

*Quality;*

*Soaking;*

*Steaming;*

*Shelf life.*

---

### ABSTRACT

The rice varieties namely *PR-115*, *PR-118* and *Punjab mehak* were subjected to three different treatments to improve quality and shelf life of brown rice. Paddy was milled to brown rice and stored at room temperature in four different types of packaging materials. Brown rice was assessed periodically for changes in pasting qualities. Milling quality improved with treatments. Pasting quality improved with treatments leaving better quality brown rice. Hot water treatment followed by steaming for 15 min was found to be best among all treatments. Peak viscosity varied significantly as influenced by variety, treatment, and storage. Peak viscosity decreased with storage. Peak viscosity decreased with treatments. Packaging material showed non-significant effect on peak viscosity. *Punjab mehak* had higher hold viscosity followed by *PR-118* and *PR-115* in the order. Breakdown viscosity varied significantly with respect to all factors except packaging material. Breakdown values decreased with storage period. Setback viscosity followed reverse pattern as that for breakdown viscosity. Setback viscosity decreased with treatments and increased with storage period. Low setback viscosity values of hydrothermally treated flour samples indicated lesser tendency to retrograde or syneresis upon cooling. Packaging in plastic bag under vacuum was found to be the best packaging material for control however for treated samples experimental data showed that packaging material play no significant role. Overall treatments proved to be functional in improving quality and shelf life of brown rice.

---