

Effect of physicochemical, thermal and rheological properties on the extrusion behavior of the eminent Indian rice cultivars

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The objective of present investigation was to assess the effect of physicochemical, thermal and rheological properties of the eminent Indian rice cultivars (PR-114, PR-121, PR-122, PR-123, PR-124, PR-126 and PR-127) on their extrusion behavior. Rheological properties such as pasting temperature, peak, hold, breakdown, setback and final viscosities were evaluated using Rapid Visco Analyzer that in turn main set a significant impact over the extrusion behavior of the selected cultivars. Cultivars like PR-122 and PR-124 categorically demonstrated a high water solubility index of 48.52 and 41.86 percent due to the presence of high amylose content i.e., 28.86 and 26.14 percent respectively. A noteworthy variation was observed in the expansion ratio of the resultant extrudates which is correlated with the degree of gelatinization because it is directly dependent on the granule structure destruction. It is one of the most important product responses that play a crucial role in governing the acceptability of the product. Gelatinization temperature showed significant positive correlation with amylose content and pasting temperature. A significant variation was testified in the bulk density of the resultant extrudates. These broadly diversified and anticipated physicochemical, thermal and rheological properties of the Indian cultivars possess significant impact on their extrusion behavior. Their detailed information can establish the foundation for obtaining extruded products with more acceptable and anticipated characteristics.

Biography

Dolly is currently pursuing her PhD in Food Science and Technology as a Junior Research Fellow from Punjab Agriculture University, Punjab. She has completed her Masters from Indian Council of Agriculture Research.