Assessment of eminent Indian cultivars with respect to dimensional and functional characteristics of paddy and brown rice (*Oryza Sativa L.*)

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The objective of present investigation was to assess the dimensional and functional characteristics of the eminent Indian cultivars (PR-114, PR-121, PR-122, PR-123, PR-124, PR-126 and PR-127). Dimensional (geometrical) properties such as length, width, thickness, equivalent diameter, surface area, aspect ratio, volume, bulk density, true density, porosity, thousand kernels weight, angle of repose and coefficient of friction were evaluated which play a critical role in designing an efficient framework for various post-harvest unit operations and storage structures. Cultivars like PR-121 and PR-126 manifested low bulk density due to the presence of long awns that in turn resulted in more space occupancy. A noteworthy variation was observed in the brown rice kernels that play a crucial role in governing the functional properties and estimating the energy prerequisites during polishing of these cultivars. Results indicated significant differences in the dimensional properties among various paddy and brown rice cultivars when compared with earlier reported results. Thousand kernel weight, width, arithmetic mean diameter and equivalent diameter showed significant positive correlations with sphericity, surface area, volume, true density and angle of repose; but negatively correlated with bulk density. A significant variation was testified in the functional characteristics such as rheological properties, water absorption capacity, swelling power, oil absorption capacity, emulsion and foaming capacity and emulsion and foaming stability of the brown rice flour obtained from these cultivars. These broadly diversified and anticipated dimensional and functional characteristics of the Indian cultivars not only establishing the foundation to preserve these races as well as encourage the farmers to cultivate these cherished rice cultivars.

Biography

Dolly is currently pursuing PhD in Food Science and Technology as a Junior Research Fellow under University Grants Commission from Punjab Agriculture University, Ludhiana, Punjab. Her present research investigation is focused on assessing the potential of various rice cultivars in the formulation of instant indigenous food mix native to India.