Rice landrace diversity in subsistence-oriented farming systems: Nutritional considerations

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Rice landraces play a very important role in food and nutritional security under subsistence farming systems in India across diverse agro-ecologies. These landraces have resisted the widespread cultivation of high yielding rice varieties due primarily to their greater adaptation to niche climate, nutrition and medicinal properties. We have extensively evaluated twenty seven prominent local landraces including black rice, red rice, aromatic rice and white rice from North-eastern (NE) Himalayan, North-western (NW) Himalayan and Southern region of India. Dehusked rice samples were used for studying nineteen important nutritional parameters. Protein (12.22-14.32%), total phosphorus (0.363-0.740 g/100 g), phytate (1.35-2.55 g/100 g) and Cu (1.090-2.141 mg/100 g) contents were significantly higher in NE landraces compared to landraces from other regions and the check variety HPR-2143. Chuhatu (7.29%) and Katheri (6.63%) registered much higher values for crude fat content than the check (3.05%). Antioxidant activity (CUPRAC μg/g GAE) was remarkably higher in black rice’s, ME-MR-1 (10.00) and MR-16 (8.10) followed by red rice’s ranging from 5.23 in Mirzaig to 3.57 in Katheri. Zn ranged from 2.56 mg in Bohana Dhan to 8.26 mg in Kalajoha, Fe ranged from 1.02 mg in Ragalvanji to 6.78 mg in Rangdi and Mg ranged from 66.84 mg in ME-MR-1 to 145.11 mg in Chittimuthyalu per 100 g basis. As limited information is available on nutritional profile of native landraces, the present proximate analyses of ethnic rice landraces reveal their important role in nutritional security of farming communities.

Biography
Gayacharan has completed his MSc from Tamil Nadu Agriculture University, Coimbatore and PhD from Indian Agricultural Research Institute, New Delhi. During the tenure of Postgraduation (MSc and PhD), he has been awarded with prestigious fellowships of DBT and CSIR, Government of India. He has been selected as Agricultural Research Scientist (ARS) in Agri. Biotechnology in the year 2013. He is currently posted in the Germplasm Evaluation Division of National Bureau of Plant Genetic Resources, a premier institution of international level.

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