Amino acid profile, protein digestibility, antioxidant and functional properties of protein concentrate of local varieties (*Kwandala, Yardass, Jeep and Jamila*) of rice bran from Nigeria

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There is growing interest in the use of rice bran protein in food formulation due to its hypoallergenic protein, high nutritional value and health promoting potentials. For the first time, amino acid profile, protein digestibility, antioxidant and functional properties of protein concentrate of some local varieties of rice bran from Nigeria were studied. It was found that the protein content of *Kwandala, Yardass, Jeep and Jamila* were 69.24, 69.97, 68.73 and 71.62%, respectively while total essential amino acid composition were 52.71, 53.03, 51.86 and 55.75 g/100 g protein, respectively. Protein digestibility of protein concentrate from *Kwandala, Yardass, Jeep* and *Jamila* were 90.70, 91.39, 90.57 and 91.63 % respectively. DPPH radical inhibition of proteins *from Kwandala, Yardass, Jeep* and *Jamila* were 48.15, 48.90, 47.56 and 53.29%, respectively while ferric reducing antioxidant power were 0.52, 0.55, 0.47 and 0.67mmol TE per gram, respectively. *Jamila* rice bran protein had higher values of onset (92.57°C), denaturation temperature (102.13°C) and enthalpy (0.72J/g) than *Jeep* (91.46°C, 101.76°C and 0.68J/g, respectively), *Kwandala* (90.32°C, 100.54°C and 0.57 J/g, respectively) and *Yardass* (88.94°C, 99.45°C and 0.51J/g, respectively) protein digestibility of protein concentrate from *Kwandala, Yardas, Jeep* and *Jamila* were 90.70, 91.39, 90.57 and 91.63% respectively. Oil absorption capacity of *Kwandala, Yardass, Jeep and Jamila* were 3.61, 3.33, 3.40 and 4.23g oil/g sample respectively, while water absorption capacity were 4.19, 4. 32, 3.55 and 3.58g water/g sample, respectively. The protein concentrates had low bulk density (0.37-0.43g/ml). Protein concentrate from *Jamila* had the highest foam capacity (37.25%), followed by *Yardass* (34.20%), *Kwanda* (31.14%) and *Jeep* (28.90%). The protein concentrates showed low emulsifying and gelling capacities. Rice protein concentrate from these local rice varieties from Nigeria could serve as functional ingredients for formulations and for enriching low protein foo