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Evaluation of physical properties of kidney beans (*Phaseolus vulgaris*)

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The research work was conducted on the physical properties of three species of kidney bean (White speckled kidney bean, Red small kidney bean and Black kidney bean). Length, width, thickness varied between 1.04-1.7, 0.66-0.79, 0.49-0.58 cm for three species of kidney bean, respectively. Arithmetic mean diameter, geometric mean diameter, square mean diameter and equivalent diameter were 0.73-1.00, 0.70-0.96, 1.23-1.62, and 0.88-1.19 cm^2, respectively. Sphericity and aspect ratio ranged between 0.56-0.67 and 0.45-0.64 for kidney bean, respectively. Porosity (%) as a function of bulk density and true density were 2.21-9.07(%), respectively. Volume, surface area and shape factor varied between 0.20-0.58, 1.53-3.47 and 0.88-1.015 cm, respectively. Thousand kernel mass (M_{1000}) were lowest for red small kidney bean (240 g) and highest for black kidney bean (499 g). The angle of repose of three varieties of kidney bean ranged between 21.74 to 23.79^0.

Key Words : Kidney bean, Physical properties, Shape factor, Square mean diameter

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