



Physical characteristics, proximate composition and anti-nutritional factors in grains of lablab bean (*Lablab purpureus*) genotypes from Kenya

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ABSTRACT

Objectives: The objectives of this study were to determine the physical characteristics, nutritional composition and anti-nutritional factors of grains from three lablab bean varieties with different colours and size developed by The Kenya Agricultural and Livestock Research Organisation (KALRO)

Methodology and results: The length, thickness and width were determined using Vernier callipers. Dry matter, protein, fat and ash were determined using standard association of official analytical chemists (AOAC) methods. Phytates were determined using high performance liquid chromatography (HPLC), while the tannins and trypsin inhibition were determined by UV spectrophotometry. The mean 100 seed weight was significantly different among the three varieties, and ranged from 26.1 g to 29.2 g. The length, thickness and width ranged from 9.7 for KAT/DL-3 to 10.7 mm for KAT/DL-1, 5.2 (KAT/DL-1) to 5.6 mm (KAT/DL-2) and 6.8 (KAT/DL-3) to 7.4 mm (KAT/DL-1), respectively. The hydration and swelling coefficients of the beans ranged from 130.7 in KAT/DL-2 to 147.2 in KAT/DL-1, and 125.1 in KAT/DL-2 to 153.3 (KAT/DL-1), respectively. The mean crude protein and energy contents varied from 22.5(KAT/DL-3) to 25.4 %,(KAT/DL-1) and 347.4 (KAT/DL-3) to 353.7 KCal/100g in KAT/DL-1, respectively, and differed significantly ($p < 0.05$) among the varieties. There were significant differences ($p < 0.05$) in the phytic acid and tannin levels, where KAT/DL-2 recorded the highest levels of 723.6 mg/100 g, and 0.33%CE, respectively.

Conclusion and application of findings: These results indicate that KAT/DL-1 has the best physical characteristics in respect to cooking and nutrition quality. This variety had the highest protein and energy content with low anti-nutritional factors, thus could offer better nutritive value in comparison to KATDL-2 and KAT/DL-3

Keywords: Lablab beans, varieties, proximate composition, physical parameters, anti-nutritional factors