

# **Evaluation of differently processed kidney bean seeds on nutrient and anti-nutrient compositions: implications for monogastric animal feeding**

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## **Abstract**

The study aimed at evaluating the effect of cooking duration and toasting on proximate composition, vitamins, minerals, amino acid and phytochemical contents of kidney bean seed. The seeds were obtained from Akwanga market in Akwanga L.G.A. of Nasarawa State, Nigeria, cleaned and extraneous materials like dry leaves, stones, and dirt were removed and cooked for 1, 2, 3 and 4 hours; another portion was toasted using aluminum pan where toasting was done until the seeds turn brown, producing sweet aroma as that ground nut cake. The cooked ones were labeled T2, T3, T4, and T5 for 1, 2, 3 and 4 hours of cooking duration, respectively while the raw and toasted were labeled as T1 and T6, respectively. Samples of each treatment were analyzed for nutrients and anti-nutrients compositions. The cooking durations showed significant ( $P<0.05$ ) increase in nutrients and decrease in anti-nutrient compositions compared to the unprocessed seeds. Similarly, toasting showed deviations in all the nutrients and anti-nutrients analyzed. The low phytochemical values recorded in cooked and toasted seeds were within safe limits for both human and animals' consumption. It is therefore concluded that Kidney bean must be cooked at least for 3 hours or toasted before feeding to monogastric animals to prevent deleterious effects.

**Keywords:** Cooking duration, toasting, nutrients, phytochemical compositions, kidney beans and monogastric animals

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**Target audience:** Monogastric animal farmers, researchers, students and feed industries