

## Starch by-Products Digestion from Sorghum Algerian Cultivars with a Great Potential for Sorghum in Livestock and Animal Feeds

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### **Abstract:**

The aim of the present study was to assess the nutritive value of by-products obtained after sorghum starch extraction, as dietary starch from feed grains. We use small-scale laboratory steeping in NaOH, and wet-milling process of starch extraction from sorghum whole grain cultivated in the Algeria (Tidikelt and Hoggar region). The kinetic of the starch digestion in sorghum meal and by-products was studied. The in vitro starch digestion was determined according to the modified method of Goni et al. (1997) by  $\alpha$ -amylase (type VI.B from porcine pancreas) and amyloglucosidase from *Aspergillus niger* enzymes. Five by-products differing in their particle sizes and starch contents were collected. The substrates from whole grain meal, prepared by dry milling, and from by-products differed in their in vitro starch digestion. The mean values for kinetic parameters ranged from 0.0066 to 0.0147 min<sup>-1</sup> for the rate constant (k), from 53.66 to 98.58% for the starch hydrolysis at infinite time ( $C_{\infty}$ ) and from 6.06×10<sup>3</sup> to 8.47×10<sup>3</sup> %.min for the area under the hydrolysis curve (AUC). Generally, a high digestibility of by-products of sorghum starch isolation with a great potential for sorghum in livestock and animal feeds are considered in this work.

### **Keywords:**

Sorghum, Starch digestion, Animal feed.