

Abstract:

Chemical analysis of sorghum straw showed that it is composed of 38.6% cellulose, 31.2% hemicellulose, 6.5% acid-detergent lignin, 8.7% crude protein and 3.1% lipids. The alkali pre-treatment removed the protein and lipid of the straw, but increased its digestibility from 24.6% to 51.3%. Solid-state fermentation of the straw with three fungal local isolates resulted in an increase in the crude protein content of the straw by 6.1-8.2% when the fungal isolates were cultivated in a straw-basal medium at the level of 1: 6 (wt/v) substrate: medium and incubated at 25°C and a pH of 5.0 for seven days. Extending the incubation period to ten days did not bring about an increase in the protein content of the straw. Fermentation also increased in the *in vitro* rumen digestibility of the straw to 55.7-62.2%