Nutritive value of wheat straw treated with Pleurotus fungi

ABSTRACT

Soaked and pasteurised wheat straw was inoculated with five species of Pleurotus fungi (coded P-21, P-30, P-41, P-60 and P-90), packed in polyethylene bags and incubated in a fermentation chamber for 21 days. The chemical composition, in vitro digestibility and in sacco degradability of the treated and untreated straw were estimated using a complete randomised design consisting of six treatments and four replicates. In a feeding trial, in vivo digestibility and voluntary intake were determined in bulls, using a 3x3 change over design. Dietary treatments were: 1) untreated wheat straw (UWS) as control; 2) fungal treated (P-41) wheat straw before mushroom formation (FTWS); 3) spent wheat straw (SPWS) after mushrooms were harvested. Apart from P-90, fungal treatment significantly (p<0.05) increased the crude protein (CP) and reduced the cell wall components of the straw. The in vitro dry mater and organic mater digestibility significantly (p<0.05) increased in the treated straw particularly with the treatments of P-41 and P-60. The in situ degradability and in vivo digestibility of DM and OM were significantly (p<0.05) increased in treated straws with the highest values observed for treatment P-41. The intake of DM, OM and digestible organic mater (DOM) were significantly (p<0.05) increased in cows fed FTWS.

Keyword: Fungal treatment; Nutritive value; Pleurotus; Wheat straw