

Micorbial colonisation and degradation of some fibrous crop residues in the rumen of goats

ABSTRACT

An investigation was carried out to study the microbial colonization and degradation of five crop residues, viz., sago waste, rice straw, oil palm trunk shavings, untreated palm press fibre and palm press fibre teated with 3% ammonium hydroxide in the rumen of goats. Colonisation by rumen bacteria and fungi was already established on all the five crop residues 8 h after incubation. However, the extent of colonization varied among the crop residues. Microbial colonization was poor on palm press fibre(treated and untreated) but more extensive on sago waste, oil palm trunk shavings and rice wtraw. By 24 h, most of the soft-walled tissues in sago waste, rice straw and oil palm trunk shavings were degraded leaving the thick-walled tissues extensively colonized by bacteria and fungi. Degradation on palm press fibre was still limited. At 48 h, the thick-walled tissues of sago waste, oil palm trunk shavings and rice straw showed various degress of degradation - from small erosion zones gto large digested areas. Bacterial growth was similar to that at 24 h but fungal growth was less. On palm press fibre, microbial colonization was more extensive than at 24 h but degradation of the fibres was still limited. Degradation of all the five crop residues at 72 h was somewhat similar to that at 48 h. Overall, microbial colonization and degradation were the most extensive on sago waste, follwed by rice straw and oil palm trunk shavings, and the least on palm press fibre(treated and untreated). Dry matter loss of the five crop residues at the various incubation periods also showed the same order of degradation.

Keyword: Goats; Rumen fungi; Rumen bacteria; Fibrous crop residues; Microbial degradation