Tannins

Description

Tannins are a group of polyphenolic compounds (Tacon, 1997) and are generally divided into hydrolysable and condensed tannins (Francis *et al.*, 2001). They can form complexes binding with proteins, minerals, digestive enzymes, and vitamin B_{12}. The digestibility is consequently impaired and it can cause growth depression. Moreover, hydrolysable tannins, when degraded, liberate smaller compounds that can enter the blood stream and cause toxicity to the organs (Francis *et al.*, 2001). If present in important quantities such as in sorghum, tannins can also alter the feed palatability (Guillaume *et al.*, 1999).

Occurrences

Tannins are widely distributed in cereals, legumes and oilseeds.

Treatment

The most effective method to reduce the condensed tannins fraction is to dehull the seeds (the tannins being concentrated in the outer layer) (Griffiths, 1991). Condensed tannins can be almost completely removed from faba bean by manual dehulling (Van der Poel et al., 1991). Condensed tannins are heat-labile. Autoclaving can remove 57% of the tannins from the faba beans but heat treatments do not improve the nutritional value of sorghum (Griffiths, 1991). Reduction levels of around 40% have been observed with faba bean by reconstitution (5 days at 25-35° C) and/or extrusion (140° C) (Van der Poel et al., 1991). Alkaline treatments using dilute ammonia, potassium carbonate or calcium oxide have been shown to reduce the tannins in sorghum grain by 80-90% (Griffiths, 1991). Fermentation of sesame seed meal with lactic acid bacteria (48h at room temperature with *Lactobacillus acidophilus*) reduced the tannin content from 20 to 10 mg/kg (Mukhopadhyay & Ray, 1999).