

The prevalence and pathogenesis of ill thrift in sheep and goats

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Introduction

Brachiaria decumbens is a high yielding stoloniferous grass ever cultivated in Malaysia. However, reports of hepatotoxicity associated with grazing of the grass reported worldwide in ruminants has curtailed its use to the fullest. Furthermore, the pathogenesis of *B. decumbens* intoxication has not been well explained leading to continuing outbreaks and ineffective treatment and control. Studies conducted in this project were aimed at elucidating the pathogenesis which in turn will lead to a better understanding of the disease and provide pragmatic strategies in treating and preventing *B. decumbens* intoxication. Experiments were conducted to obtain a baseline value of mineral and phytate levels in *B. decumbens*, the effect of feeding *B. decumbens* to sheep and the effectiveness of zinc (Zn) and its role in the prevention of *B. decumbens* intoxication.

Materials and Methods

Samples of *B. decumbens* collected from five different farms representing Peninsular Malaysia were air-dried, milled and analysed for the concentration of selected minerals and phytate. In two other separate experiments, sheep were fed *B. decumbens* either alone or with Zn. Zinc was given orally in gelatin capsules on five days of the week at a dosage of 25 mg of ZnO/kg body weight. Blood and pertinent tissues were collected at fortnightly intervals and necropsy respectively. The liver function enzymes, pertinent indicators reflecting antioxidant defense and lipid peroxidation and selected minerals were monitored, and pathologic studies both at cellular and subcellular levels were also conducted.

Results and Discussion

A non-critical variation of concentration of Zn and low phytate was found in all samples. Clinical signs of photosensitisation, jaundice and submandibular oedema and lesions of hepatocytic necrosis and renal damage are seen in sheep fed *B. decumbens* either alone or in combination with Zn. In all *B. decumbens* fed sheep, there was an impairment of the antioxidant defense and involvement of lipid peroxidation. The concentration Zn in the grass *per se* is not involved in this intoxication. However, excess Zn further exacerbated the progression of the intoxication. Thus, Zn is ineffective in preventing the development of *B. decumbens* intoxication.

Conclusions

Lipid peroxidation is involved in this intoxication. However, phytate is not involved in this toxicosis and Zn is not effective in preventing the development of this condition.

Benefits from the study

It is known that the saponin found in this grass is *per se* responsible for this toxicosis. Farmers should not waste their time and money in preventing the toxicosis by Zn supplementation.

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<i>Expertise Development</i>			
Name of Graduate	Degree Awarded	Field of Expertise	Graduation Year
SZ Zhang	PhD	Nutritional Pathology	2001

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