

Effect of Phenobarbitone Treatment Against Signal Grass (*Brachiaria decumbens*) Toxicity in Sheep

ABSTRACT

The effect of phenobarbitone against signal grass (*Brachiaria decumbens*) toxicity was studied in 26 male crossbred sheep. Grazing on signal grass significantly decreased the concentration of cytochrome P-450 and the activity of drug metabolizing enzymes, viz. aminopyrine-N-demethylase, aniline-4-hydroxylase, UDP-glucuronyltransferase and glutathione-S-transferase in liver and kidneys of affected sheep. Oral administration of phenobarbitone (30 mg/kg body weight) for five consecutive days before grazing on *B. decumbens* pasture, and thereafter, for three consecutive days every two weeks, resulted in significant increases in hepatic and renal activities of drug-metabolizing enzymes. The induction of drug metabolizing activity in sheep grazing on signal grass group was found to be lower than in animals given phenobarbitone alone. Induction by phenobarbitone provided a degree of protection against the toxic effects of *B. decumbens* as indicated by the delay in the appearance of signs of toxicity. Furthermore, these were much milder compared to those in the sheep not treated with phenobarbitone. The present study suggests that phenobarbitone-type cytochrome P-450 isoenzyme-induction may increase resistance against signal grass (*B. decumbens*) toxicity in sheep.

Keyword: *Brachiaria decumbens*, drug metabolism, phenobarbitone, sheep, signal grass