Investigations into supplementing 50% leucaena diets with varying levels of cassava on toxicity effects in bulls

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Feeding leucaena as the sole dietary component is considered wasteful as it contains high CP which is exceeding of the requirement and is also harmful due to its toxic contents. However, nutrient balance can be improved by the inclusion of energy source such as cassava to the ration. A study was conducted to investigate the effect of inclusion of various level of cassava (0%, 20% and 40%) in the ration of twelve Bali bulls fed 50% leucaena on productive performance and toxicity status. The 3-HP was the major isomer found in the initial colorimetric test. While 2,3-DHP in conjugated form was detected in the final colorimetric test. HPLC confirmed that overall, there were no significant differences between treatments in the amount of 3,4-DHP (P = 0.27), free-2,3-DHP (P = 0.33), secondary conjugated-2,3-DHP (P = 0.26), primary conjugated-2,3-DHP (P = 0.50) and total 2,3-DHP (P = 0.63) excreted in urine. Conjugated 2,3-DHP was high on day 3, and fell in all treatment from day 7 onwards, but it increased again on day 21 in all groups. The serum alanine aminotransferase (ALT) and aspartate aminotransferase (AST) level were not elevated in all group. This study provides evidence to confirm the new paradigm that hepatic conjugation plays an important role in DHP detoxification through the processes of glucoronidation and it upregulated regardless of energy sources in the diet.