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SELENIUM STATUS IN BEEF AND DAIRY CATTLE AT TAMAN PERTANIAN UNIVERSITI, UNIVERSITI PUTRA MALAYSIA

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Abstract

Selenium (Se) nutrition forms an integral part of growth and immune function of man and animals. Deficiency of Se in cattle will inevitably lead to poor growth and mastitis causing an economic loss to a farm. This study was carried out to determine the level of Se in beef cattle and dairy cattle reared at the Taman Pertanian Universiti, Universiti Putra Malaysia. A total of 27 dairy and 36 beef cattle were randomly chosen in this study. The age of the cattle used ranged from 1 to 9 years old comprising of both sexes. Blood sample was collected into heparinized and plain tubes for the detection of glutathione peroxidase (GSH-Px) activity and aspartate aminotransferase (AST), creatine kinase (CK) and malonylaldehyde (MDA) concentrations, respectively. The activity of GSH-Px was detected using the dithio-bi-nitrobenzoic acid (DTNB) direct method assay. The concentrations of AST and CK were determined using standard diagnostic kits, while the MDA using the TBA (thio-barbituric acid) test. It was found that although no significant differences existed in the GSH-Px activity between breeds, their Se status were in the deficient state. This is in line with previous reports that the acidic soil of Malaysia renders low Se uptake by plants leading to deficiency state in grazing ruminants. The concentrations of AST and CK were higher in beef cattle due to much more overt muscular damage as the result of foraging and lack of supplementation compared to dairy cattle. It is suggested that diet of both breeds should be supplemented with Se to prevent such deficient status in order to increase the productivity of the farm.

Keywords: selenium, beef and dairy cattle, AST, CK, MDA, GSH-Px