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Novel procyanidin antioxidant: A potential anti-fatigue agent in donkeys subjected to packing during the cold-dry season in northern Nigeria

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Overloading and overworking of donkeys may cause fatigue which is a major welfare issue. The experiment aimed at determining the effect of a novel procyanidin on some biomarkers of fatigue in donkeys subjected to packing during the cold-dry season in northern Nigeria. Methodology: Matured jacks (n=10) were used for the study. Five of them were given pycnogenol (PYC) in feed for seven days prior to packing (test donkeys), while another five were given feed only (control donkeys). Blood sample was collected for plasma analyses from each donkey before, during, 5 minutes after packing and at day three and seven after packing. The plasma samples were analysed for creatine kinase (CK), tumor necrosis factor-alpha (TNF-α), superoxide dismutase (SOD) and total antioxidant capacity (TAC). Result: The TNF-α concentration was significantly ($P < 0.05$) higher in the control group (35.6 ± 3.3 ng/ml), when compared with the test group (29.6 ± 2.4 ng/ml). The CK activity was significantly ($P < 0.05$) higher in the control group during (95.9 ± 12.4U/L), after (186.5 ±12.9 U/L), 3 (60.3 ± 8.8 U/L) and 7 days after (205.8 ± 8.0 U/L) packing when compared with test group, with values of 71.7 ± 5.3 U/L, 140.2 ± 19.8 U/L, 49.2 ± 20.3 U/L and 71.9 ± 15.7 U/L, respectively. The SOD activity increased in the test group especially after packing (755.7 ± 74.1 U/L) and was significantly ($P< 0.05$) higher than the value obtained in control group (443.2 ± 59.9 U/L). The TAC values obtained during the packing period were significantly ($P< 0.05$) higher in test group when compared to the control group. Conclusion and significance: Packing caused muscle inflammation and damage indicating fatigue, which was mitigated by PYC.

Recent Publications:

1. Olaifa, F.H., Ayo, J.O., Aluwong, T. & Rekwot, P. I. (2022). Pycnogenol improves kinematic parameters of donkeys (Equus asinus) subjected to packing during the dry season. Sokoto Journal of Veterinary Science, 20 (5), 63-70.

2. Olaifa, F.H., Ayo, J.O., Aluwong, T. and Rekwot, P.I. (2021). The effect of epicatechin-(4β-8)-catechin on oxidative stress and some biomarkers of fatigue of donkeys subjected to packing during the dry season in northern Nigeria. Journal of Applied Animal Welfare Science, 25(4); 396-409.

3. Olaifa, F. H., Ayo, J. O., Aluwong, T., Rekwot, P. I. and Zakari, F. O. (2019). Pycnogenol® supplementation improved the erythrocyte stability of packed donkeys during the late hot-dry season in Zaria, Nigeria. Comparative Clinical Pathology, 28:281-286.

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