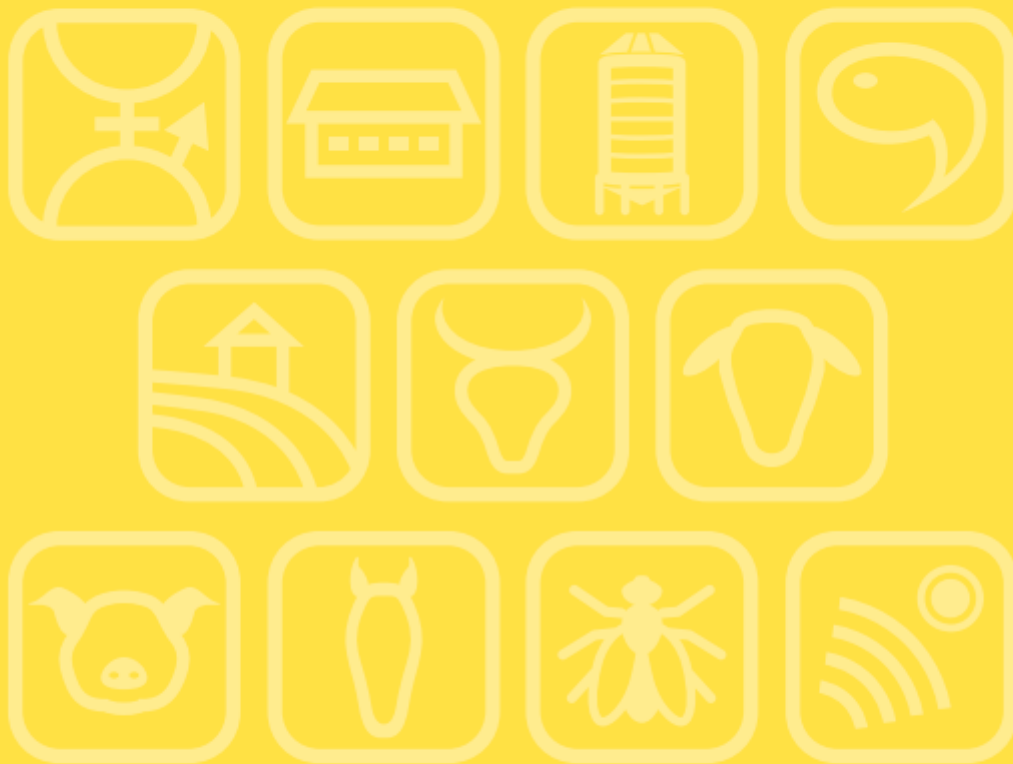


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Oxidative profile in fattening horses fed with different feeding strategies

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The study investigates the effect of two feeding strategies on the oxidative balance in horses. The trial was carried out in a horses fattening farm for 100 days (fattening period). 19 Bardigiano horses (age 14.3±0.7 months) were randomly divided in two groups. One group was fed with high amounts of concentrate (HCG; n=9): 6 kg/animal/day of hay and 7 kg/animal/day of a cereal-based pelleted feed (starch 55% as fed), in 2 meals/day. The second group was fed with high amounts of fibre (HFG; n=10), with the same hay *ad libitum*, and 3.5 kg/animal/day of a fibrous-pelleted feed (starch 20% as fed) in 2 meals/day. At slaughter, blood and liver samples were collected. *L. lumborum* muscle was sampled 24 hours after slaughter. All samples were analysed for glutathione peroxidase (GPx), catalase (CAT), and superoxide dismutase (SOD); plasma and muscle for TBARs, hydroperoxides, and carbonylated proteins. Student's *t*-test and Mann Whitney U-test were applied (P<0.05). Muscular GPx was higher in HCG than in HFG (P=0.02). Plasmatic CAT had higher activity in HFG than HCG (P=0.03). Muscular TBARs were significantly higher in HFG than in HCG (P=0.04). Different feeding strategies affect oxidative system. The higher levels of CAT in plasma of HFG suggest that animals tend to be highly protected by oxidative damages, as it is one of the most rapid/effective antioxidant enzyme. Muscle samples were stored 24 h at refrigerated conditions before sampling. This could explain the higher TBARs concentration in HFG: higher intake of fibre is correlated to higher unsaturation of intramuscular fat. The lack of significant differences in liver could be due to its high capacity in reducing high amounts of oxidised metabolites, so the effect of the feeding system was insufficient to modify the investigated enzymes. Concluding, different feeding strategies influence oxidative status of horses, and plasmatic CAT activity could be a useful mean for revealing effects of the feeding system on oxidative balance in horses.