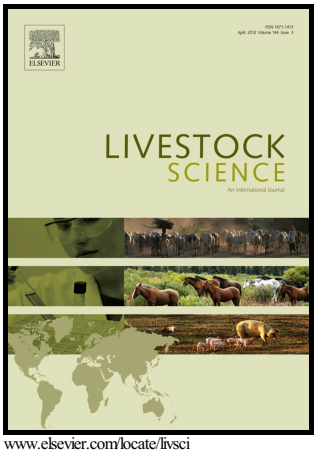

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Antioxidant effects of a propolis extract and vitamin E in blood and milk of dairy cows fed diet containing flaxseed oil

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Abstract

The diets of dairy cattle were supplemented with phenolic compounds from propolis extract to determine the potential benefits on milk quality. The use of these compounds along with vitamin E may reduce the oxidation levels in blood and milk of cows fed polyunsaturated fatty acids. This study aimed to assess the fatty acid composition of milk, the antioxidant quality of milk and blood lipoperoxidation of dairy cows whose diet was supplemented with flaxseed oil containing a propolis-based product (PBP) with or without vitamin E. Four Holstein cows, averaging 584 ± 50 kg of body weight and 90 ± 40 days in milk, were used in a 4 × 4 Latin square, with four periods and four diets: control diet; diet with flaxseed oil, 25 g/kg of dry matter (DM); diet containing flaxseed oil + PBP, 1.2 g/kg DM; diet containing flaxseed oil + PBP + vitamin E, 375 IU/kg DM. Diets containing PBP and PBP combined to vitamin E did not affect the DM intake and chemical composition of milk. The addition of PBP and vitamin E in diets increased the concentrations of fatty acids *trans*9-18:1, *cis*9,*trans*11-18:2 and the total CLA content in milk. The total polyphenol concentration in milk was elevated by PBP and PBP in combination with vitamin E. PBP enhanced the antioxidant activity of milk by increasing the reducing power, but the antioxidants did not preserve milk fat from oxidation. Supplementing the cow diet with PBP reduced the time