



11th Euro Fed Lipid Congress

and 30th ISF lecture series



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Oils, Fats and Lipids:

New Strategies for a High Quality Future

27 – 30 October 2013 • Antalya • Turkey

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BOOK OF ABSTRACTS

Oxidative Stability, Fatty Acid Composition and Cholesterol Content of Milk Fat from Cows Fed Sunflower Oil-supplemented Diets

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Conjugated linoleic acids (CLA) are naturally occurring bioactive fatty acids found mainly in ruminant fat as a result of ruminal biohydrogenation of dietary polyunsaturated fatty acids. Since a number of health-promoting effects have been attributed to CLA, efforts have been made to increase its content in milk fat. Supplementing the diet of cows with polyunsaturated fatty acids has been shown to be an effective strategy to increase the milk fat CLA content, but changes in milk fatty acid composition may affect the oxidative stability of milk fat. In this work, the butter was produced from milk of cows fed elephant grass-based diets containing different levels of sunflower oil (SO) and analyzed for fatty acid composition, cholesterol content and oxidative stability. Twelve primiparous Holstein cows were assigned to one of the following dietary treatments (level of SO, % of diet dry matter) in a triplicate 4 x 4 Latin Square design: 0% (Control); 1.5%; 3.0% and 4.5% of SO. The analysis of fatty acid was performed in Agilent 6890 GC with a CP-Sil 88 column (88% cyanopropyl-12% methyl silicone). The oil stability index (OSI) analysis of fat was carried out at 110°C, air flow of 10 L/hr (Rancimat Metrohm) and the cholesterol content determined according to AOAC. The inclusion of sunflower oil in the diet increased the CLA content from 0.7 to 2%, the total *trans* fatty acid from 4.4 to 9.9% and the *cis* monounsaturated fatty acid from 27 to 36%. In contrast, the saturated fatty acid was reduced from 69 to 49%. No difference for linoleic acid was observed ($p < 0.05$). There was significant difference for cholesterol content, with the lowest concentration being observed in milk fat from cows fed no SO and the highest value when 1.5% SO was included in the diet. An OSI of 18 hr was obtained for the fat with higher CLA concentration despite the increase in the monounsaturated and a decrease in the saturated fatty acid contents. There was no difference for OSI (14 hr) between fat from cows fed 1.5 and 3% SO, and the lowest OSI (8 hr) was obtained for control treatment. The inclusion of sunflower oil in elephant-grass based diets was nutritionally beneficial for fatty acid profile and the increase of the oxidative stability was likely due to the increase in tocopherol content.