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DIPARTIMENTO DI SCIENZE VETERINARIE PER LA SALUTE, LA PRODUZIONE ANIMALE E LA SICUREZZA ALIMENTARE

Fatty acid profile, Desaturase and Atherogenic indices in milk of Holstein Friesian and Italian autochthonous cattle breeds

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Abstract

In the past decades, milk has been considered a mere supplier of nutrients, although its importance was considered paramount for the development and growth of newborns, a number of aspects regarding the biological functions of milk are still unknown. Several positive functional properties of milk derive from fatty acids (FA), mainly unsaturated fatty acids (UFA), either monounsaturated (MUFA) or polyunsaturated (PUFA) fatty acids (Mills, S. *et al* 2011; Fedacko, J. *et al* 2007). In particular, UFAs are considered functional components of food because of their positive effects on disease prevention (FAO., 2010; Connor, W.E.,2000; Wijendran, V. and Hayes, K.C., 2004).

The objective of this study was to characterize the fatty acid profile, the desaturase index and the atherogenic index in milk of local Italian bovine breeds (Cabannina, Varzese and Valdostana) and in a cosmopolitan breed (Holstein Friesian) during the first period of lactation. A total number of 129 cows have been enrolled (Friesian n=30, Cabannina n=30, Varzese n=30, Valdostana n=39) from three dairy farms with similar management and feeding conditions. Animals were chosen in order to have three classes of lactation stage: milk collections were carried out starting from 40±10 days (group A), 70±10 days (group B), and 130±10 days (group C). Milk samples have been analyzed by gas chromatography to obtain the fatty acid profile, on the basis of these results, the Desaturase and Atherogenic Indices were calculated.

A number of differences between breeds have been found, in particular local breeds showed an higher percentages of UFA, MUFA, PUFA, and a higher UFA/SFA ratio, as well as lower desaturase indices (related to C14, C16 and C18) and atherogenic index, when compared to Friesian cows. The results can add further information aiming to re-evaluate an almost lost local treasure in Northern Italy.

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