Comparison of the Fatty Acid Profiles of the Meat of Crossbreds with 75% Charolais Blood Proportion and Thai Indigenous Upland Cattle

Niraporn Chaiwang[1], Sanchai Jaturasitha[1*], Korawan Sringam[2], Michael Wicke[3] and Michael Kreuzer[4]

[1]Department of Animal and Aquatic Sciences, Faculty of Agriculture, Chiang Mai University, Chiang Mai 50200, Thailand
[2]Central Laboratory, Faculty of Agriculture, Chiang Mai University, Chiang Mai 50200, Thailand
[3]Department of Animal Breeding and Husbandry, Georg-August University of Göttingen, Albrecht-Thaer-Weg 3, 37075 Göttingen, Germany
[4]ETH Zurich Institute of Agricultural Sciences, Universitaetstrasse 2, 8092 Zurich, Switzerland

**Corresponding author. E-mail: ja.sanchai@gmail.com*

ABSTRACT

The objective of this study was to compare the fatty acid composition of the Longissimus dorsi muscle of Charolais crossbreds (75%; with 25% Thai native cattle blood) and Thai indigenous Upland cattle (n=8 each). The animals were fed ad libitum grass and supplemented with concentrate at 1.5%/day of body weight. The cattle were on average four years old at slaughter. As a result, the crossbred beef had higher proportions of C16:0 and C18:0 of total lipids than the Upland cattle (P<0.05). At the same time, C14:1 and C18:2 cis-9, trans-11 (conjugated linoleic acid) was lower than in Upland cattle (P<0.05). Overall, this meant higher saturated fatty acid proportions in the crossbreds compared with the Upland cattle, while the opposite was true for the sums of monounsaturated fatty acids and polyunsaturated fatty acids, and the ratio of polyunsaturated to saturated fatty acids (P<0.05). This meant that the beef from the Upland cattle was better nutritionally for humans than the crossbreds.

Keywords: Fatty acid composition, Beef quality, Charolais crossbred, Thai Indigenous Upland cattle

INTRODUCTION

The fatty acid composition of meat is important, as it contributes to the nutritional value and affects various aspects of meat quality, including shelf life and flavor (Wood et al., 2003). Moreover, the fatty acid composition of fat in food has received increased attention, due to its potential impact on human health. Beef fat quality can be influenced by many factors, including genotype (breed) (Cuvelier