

80. Fatty Acid Profile of Sudanese Fermented Camel's (*Camelus dromedarius*) Milk Gariss

A.I. Ahmed¹, B.E. Mohamed², N.M. Elkhatim², B. Faye³, G. Loiseau⁴ and D. Montet⁴

¹Department of Biochemistry and Food Science, Faculty of Natural Resources and Environmental Studies, University of Kordofan, Elobeid, Sudan, P.O. Box .160.

²Department of Food Science and Technology, Faculty of Agriculture, University of Khartoum, Shambat, Sudan.

³Centre De Coopération Internationale En Recherche Agronomique Pour Le Développement CIRAD, Montpellier, France.

⁴UMR Qualisud, CIRAD, TA B-95/16, 73 rue J.-F. Breton, 34398 Montpellier Cedex 5, France.
Corresponding author email: faye@cirad.fr

Introduction

Milk fatty acid composition is one of the aspects related to the health effects of camel's milk and its products; however, the fatty acid composition of camel's milk is not well documented (Ulbricht and Southgate, 1991; Farah, 1993).

Human milk fat contains a higher content of unsaturated fatty acids compared with bovine but camel's milk seems to be very different from other mammalian milks in terms of unsaturated fatty acid composition and in its low content of short-chain fatty acids (Bracco *et al*, 1971; Konuspayeva *et al.*, 2008). It has been reported (Konuspayeva *et al.*, 2008) that the percentage of saturated acids is higher in bovine milk fat (69.9%) than in camel milk fat (67.7%).

Materials and Methods

Fermented camel milk (*gariss*) samples were obtained from three areas of North Kordofan and three areas from Khartoum state, Sudan; the samples were collected from nomads moved around Elobeid (North Kordofan State) and from Khartoum state retailers in February 2010.

From the extracted lipid stored at 4°C according to the method described by Konuspayeva *et al* (2008) was used to prepare methylation and quantify fatty acids.

The study indicated that the fatty acids profile of fermented camel milk (*gariss*) obtained from Kordofan and Khartoum locations were not different in short, medium and long chains quantity, and while in the individual locations were different in most of them.

Results and Discussion

The objective of the present study was to determine the fatty acid profile of fermented camel milk (*gariss*) obtained from six different locations in Kordofan and Khartoum States in Sudan. The mean values of fatty acids obtained from Khartoum were significantly ($P \geq 0.05$) higher than that from Kordofan in C16:1, C18:1 and C18:2, while all others fatty acids investigated in this work of Kordofan and Khartoum were not significantly ($P \geq 0.05$) different.

In all samples investigated in this work there was only one location in Kordofan region with content of butyric acid (C4:0) of 5.5% were in Khartoum State locations. There were no values of butyric acids detected.

Location KRD1 (from Kordofan area) has no content of Caproic acid (C6:0), while location KRD2 has the highest value followed by KHT3 and KRD3 (those three locations were not significantly $P \geq 0.05$ different) and significantly higher than locations KHT1 and KHT2.

The analyses of the short, medium and long chains fatty acids in Kordofan, Khartoum and individuals of the locations indicated no significant differences between regions.

References

- Farah, Z (1993). Composition and characteristics of camel milk. Review article, *J. Dairy Res.* 60: 603–626.
- Konuspayeva, G., Lemarie, E., Faye, B., Loiseau, G., and Montet, D. (2008). Fatty acid and cholesterol composition of camel's (*Camelus bactrianus*, *Camelus dromedarius* and hybrids) milk in Kazakhstan. *Dairy Science and Technology*, 88, 327-340.
- Ulbricht, T.L.V and Southgate, D.A.T (1991). Coronary heart disease: seven dietary factors, *Lancet* 338: 985–992.