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The fatty acid profile of traditional home-made kurut in Xinjiang pastoral regions

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Introduction Kurt (acid milk cheese) is dried yoghurt made from skim milk of ruminants in semi-arid pastoral region in central part of Asia. The skim milk is curdled by addition of old yoghurt as a starter and separated by filtering through a cheese cloth bag until most of the whey is removed. As kurut is one of the essential food sources for the herders in the cool season, the nutritional value is very important for the health of those people. The objective of this study was to investigate the nutrient contents and fatty acid profiles of the kurut produced in the pastoral region in Xinjiang, west part of China.

Materials and methods Twenty kuruts were collected from the suburban pastoral area of Altai, Yining and Urumqi in Xinjiang. The samples were dried at 60°C in an air-forced oven, ground to pass a 1-mm screen and then used for subsequent analysis. Each of kurut samples were analyzed for moisture and kjeldahl protein according to the procedures of the AOAC (1990). Lipids were extracted with chloroform/methanol (2:1 v/v) and fatty acids in lipid extracts were methylated using 5% methanolic-HCl. Methyl esters were separated by Gas Chromatography (Shimadzu 2010) fitted with a capillary column CP-Sil 88 (50m × 0.25mm).

Results and discussion The moisture content of kurut ranged from 1.0% to 14.3% (Table 1) and it was so hard to chew when the moisture is low. The crude protein and fat contents of the kuruts on average were 52.0% and 18.6% in dry matter, respectively. The crude protein content was similar and fat content was low in our kuruts compared with the kuruts made in Turkey (Bahri and Gulsum (2002)), they reported the average fat content of the kuruts was 37.1% and it was ranged from 16% to 64%. The low fat content in our kuruts is due to the use of skim milk for kurut making.

Table 1 Crude protein and fat content, and fatty acid profiles of Kurut (acid cheese).

	Mean	Min	Max
Moisture	4.5	1.0	14.3
Crude protein (% DM)	52.0	40.2	63.3
Total fat (% DM)	18.6	6.3	31.1
Fatty acid composition (Mo%)			
≥C12	7.7	3.2	12.9
C14:0	13.2	11.4	16.5
C16:0	31.3	22.6	36.2
C16:1	1.5	0.2	2.3
C18:0	4.9	1.9	11.0
C18:1(c)	30.6	19.2	44.3
C18:1(t)	2.1	0.0	3.6
C18:2	0.9	0.0	1.7
C18:3	1.0	0.0	2.4
Other	5.0	1.3	8.8

The fatty acid profile of the kuruts in Xinjiang was characterized by high proportion of unsaturated fatty acids, predominantly C18:1. The total unsaturated fatty acid content and the C18:1(c)/C16 ratio in our samples were 37.5% and 1.1, respectively. Innocente et al. (2002) reported the mountain cheese was higher in unsaturated fatty acid content (44.1%) and C18:1(c)/C16 ratio (1.37) than the cheese from the plains (33.2% and 0.85, respectively). The proportions of C18:2 and C18:3 were 0.9 and 1.0%, respectively, and these values were similar with those of cows' milk.

It is concluded that kurut made in Xinjiang has low moisture, but very high protein and fat contents and was rich in unsaturated fatty acids.

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