Research Regarding Physicochemical Changes in Cow Butter During Freezing Storage

Flavia POP

North University, 76 Victoriei Street, 430122, Baia Mare, Maramures, Romania, flavia_maries@yahoo.com

SUMMARY

Physicochemical characteristics and freshness indicators of cow butter during freezing storage (-15 - 18°C) were studied. The content of saturated fatty acids was higher (68.35%) than that of unsaturated fatty acids (31.65%). There was an increase of titrable acidity during storage, butter hydrolysis was installed after one month under freezing conditions. Results showed that butter is resistant to oxidation, epihidrinic aldehyde was shown after 9 months of storage in freezing conditions.

The content of saturated fatty acids in butter was (68.35%) and that of unsaturated fatty acids (31.65%), major fatty acids present were miristic, palmitic, capric, stearic and oleic acids, as shown in fig.1. Fig.2 shows that in the first 6 months of storage under freezing there was a slow increase of the peroxide index, which corresponds to the initiation phase of oxidation, followed by a sharp increase corresponding to propagation phase in which are formed the largest amount of hydroperoxides as primary compounds of oxidation, in the next 3 months the growth was relatively constant because the balance formed between peroxides and secondary compounds, and after 9 months the peroxide index decreased, in this moment Kreis reaction is positive indicating epihidrinic aldehyde presence.

Results showed that butter is likely to acid hydrolysis due to the high water content (16%), and is resistant to oxidation due to low composition in unsaturated fatty acids, advanced oxidation was installed after 9 months if frozen butter. In frozen butter altering processes take place more slowly than in that stored under refrigeration. Hydrolysis process is installed more quickly in terms of refrigeration and freezing than oxidative processes, being intensified by a higher water content in product and by hydrolytic enzymes presence.

REFERENCES