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قسم

نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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بعض الوثائق الأصلية تالفة

شبكة المعلومات الجامعية

بالرسالة صفحات لم ترد بالأصل

ANTIOXIDANT ACTIVITY OF MILK FRACTIONS AND THEIR USE FOR MAKING SOFT CHEESE

By

AHMED ALAA EL-DIN AHMED ELHADYDY
B.Sc. Agric. Sci. (Dairy Science), Fac. Agric., Cairo Univ., 2013

THESIS

Submitted in Partial Fulfillment of the Requirements for the Degree of

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Date: 26 / 2 / 2020

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Department: Dairy Science **Approval: 26/2/2020**

ABSTRACT

This study was designed to determine the antioxidant activity of cow, buffalo, goat, sheep and camel milk either raw or heat-treated by pasteurization or sterilization. DPPH radical scavenging activity, metal chelating activity and reducing power methods were used to evaluate the antioxidant activity. Also, skim milk, whey and deproteinized milk were prepared to determine which milk components including fat, casein and whey proteins are responsible for antioxidant activity. In addition, this study aimed to produce highly antioxidant activity soft cheese from the curds obtained from skim milk, whey and buttermilk. Four cheese treatments were made from skim milk, whey and buttermilk curds at different ratios. Kareish cheese was made and served as a control.

The results showed that sheep milk exhibited the strongest DPPH radical scavenging and metal chelating activities, while buffalo and sheep milk presented had the highest reducing power. Antioxidant activity of all milk fractions was lower than that of whole milk. Moreover, skim milk had the highest antioxidant capacity, while deproteinized milk was the lowest.

Also, the results demonstrated that pasteurization did not affect the antioxidant activity of different types of milk. Sterilization led to increase the antioxidant activity of milk from different species.

Furthermore, the obtained results revealed that blending whey and buttermilk curds to Kareish cheese curd led to increase total solids and fat of cheese treatments compared to control. Cheese of treatment 4 (1 Kareish curd: 2 whey curd: 1 buttermilk curd) gained the highest scores of flavor and overall acceptability. Kareish cheese exhibited low antioxidant activity by three methods. Blending Kareish cheese curd with whey and buttermilk curds in cheese treatments led to increase the antioxidant capacity. A decrease in the production cost per kilogram of four cheese treatments at rate 35-48% was observed compared to the production cost of control cheese.

Key words: Antioxidant activity, Different milk species, Milk fractions, Heat treatment, Fresh soft cheese.

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