



جامعة الإمارات العربية المتحدة
United Arab Emirates University

**The College of Graduate Studies and the College of Food and Agriculture
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Master Thesis Defense**

Entitled

EFFECT OF HEAT TREATMENT ON CAMEL MILK PROTEINS

by

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Abstract

Camel milk is important in the dry and arid lands because of cultural, nutritional, and therapeutic properties. Milk proteins are known to be affected by various treatments including heating. The structure of proteins are known to change upon exposure to temperatures due to unfolding/folding and intra- and inter-molecular interactions. The aim of this thesis was to study the effect of various heating temperatures (60-130°C) and times (0, 1, 10, and 30 min) on camel milk proteins. Electrophoresis (SDS-PAGE), free thiol groups, and hydroxymethylfurfural were used to observe the changes in proteins after the heat treatments. It was found that considerable changes in the proteins happen already during the first minute of heating. Camel whey proteins were more sensitive to heat than the caseins. As camel milk is devoid of β -Lactoglobulin, the major whey protein is α -Lactalbumin. α -Lactalbumin showed an increase in intensity with heating, which was not reported before. This might be due to complexation with fatty acids and formation of Alpha-lactalbumin Made Lethal to Tumor cells (AMLETs). The free thiol content decreased while hydroxymethylfurfural increased with heating time and temperature.

Keywords: Camel milk proteins, α -lactalbumin, heat treatment, SDS-PAGE, hydroxymethylfurfural.