

**FORMULATING AND PROCESSING OF A NUTRITIONALLY  
ENHANCED EXTENDED SHELF- LIFE FLUID MILK AND EGG  
MIXTURE**

Tracy D. Sutton

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Susan E. Duncan, Chair

Denise Brochetti

Cameron R. Hackney

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# **FORMULATING AND PROCESSING OF A NUTRITIONALLY ENHANCED EXTENDED SHELF-LIFE FLUID MILK AND EGG MIXTURE**

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## **(ABSTRACT)**

A milk and egg mixture was processed at 96°C and 92°C with 10 sec hold times and evaluated for nutritional composition, functional characteristics, and shelf-life. The process was more than sufficient to destroy *Coxiella burnetti* and *Salmonella senftenberg* which were the most heat resistant organisms of concern in processing this milk and egg mix. The spoilage organisms received 2,200 D and 425 D processes, respectively, which were more than adequate for providing a safe product and extending the shelf life of the product for seven weeks under refrigerated storage conditions. Both sweetened and unsweetened formulations were evaluated.

The nutritional profile of the milk and egg mix was improved when dried eggs (solids and liquid proportion equivalent to whole egg) were replaced with dried egg white, cholesterol reduced egg yolk, and skim milk. The fat and cholesterol were reduced between 22 to 33% and 37 to 44%, respectively, in the cholesterol reduced formulation (CRF) as compared to the control formulation (CF). The protein content of the milk and egg mix was not altered by utilization of cholesterol - reduced egg yolk in the CRF as compared to the CF. Addition of  $\beta$ -galactosidase decreased the lactose up to 96%. The CF were more yellow than the CRF in the mixes and baked gels ( $p < 0.05$ ). There were also no difference in gel strength between the baked gels made from the two formulations. There were no significant chemical and physical changes over the seven week storage period of the product at refrigerated conditions ( $p < 0.05$ ).

## **DEDICATION**

I would like to dedicate this thesis to all of my family who supported me through all of my endeavors as I strived to attain a higher education. You guys always knew what to say or do to bring a little sunshine in my day.

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