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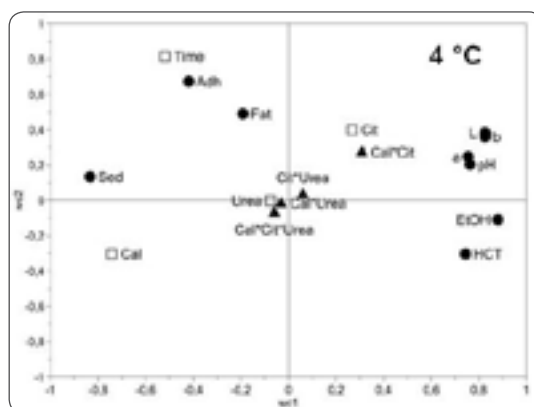
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Effect of calcium, citrate and urea on the stability of ultra-high temperature treated milk: A full factorial designed study

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The composition and properties of raw milk is of significant importance for the stability of the final dairy product, especially in dairy products with long shelf-life such as Ultra-High Temperature (UHT) treated milk. The objective of this study was to, by a full factorial designed study; investigate the effect of elevated levels of calcium, citrate and urea on the stability of UHT milk stored at 4, 20, 30 and 37°C. Stability was evaluated by changes in pH, ethanol stability, heat coagulation time, fat separation, fat adhesion, sediment formation and color. Independent of storage temperature, calcium content had a significant effect on the stability and was strongly correlated to sediment formation. Addition of citrate mainly affected the color of the UHT milk but was also positively correlated to pH and ethanol stability. Urea had little effect on all responses. At all storage temperatures the storage time was closely connected to fat separation and adhesion. Our observations suggest that at different temperatures different mechanisms cause changes in UHT milk during storage. A better understanding for variations in milk composition and changes during storage can improve the shelf-life of UHT milk.



Partial Least Squares (PLS) for ultra-high temperature treated milk stored 0-52 weeks at 4°C. (□) factors, (▲) interaction terms and (●) responses.

Recent Publication

1. Karlsson M A, Langton M, Innings F, Wikström M and Lundh Å S (2017) Short communication: variation in the composition and properties of Swedish raw milk for Ultra-High Temperature processing. *Journal of Dairy Science* 100(4):2582–2590.

Biography

Maria A Karlsson is a third year PhD student at the Swedish University of Agricultural Sciences in Uppsala, Sweden, and holds an MSc in Agriculture with specialization in Food Science. She currently investigates how factors related to the composition and properties of raw milk affect the stability of Ultra-High Temperature (UHT) milk during long time storage. Her PhD project is conducted in close collaboration with Tetra Pak and Norrmejerier, a Swedish dairy cooperative.

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