

[Available Issues](#) | [Japanese](#)>> [Publisher Site](#)
 Author: [ADVANCED](#) | Volume Page
 Keyword: |

[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN : 1881-3984

PRINT ISSN : 1344-6606

Food Science and Technology Research

Vol. 14 (2008) , No. 2 pp.117-123

[\[PDF \(700K\)\]](#) [\[References\]](#)

Effects of Ohmic Heating on Microbial Counts and Denaturation of Proteins in Milk

[Huixian SUN](#)¹⁾, [Shuso KAWAMURA](#)¹⁾, [Jun-ichi HIMOTO](#)²⁾, [Kazuhiko ITOH](#)¹⁾,
[Tatsuhiko WADA](#)¹⁾ and [Toshinori KIMURA](#)¹⁾

1) Graduate School of Agricultural Science, Hokkaido University

2) Department of Foods Distribution, Rakuno Gakuen University

(Received: August 10, 2007)

(Accepted: November 6, 2007)

The aim of this study was to compare the inactivation effects of ohmic heating (internal heating by electric current) and conventional heating (external heating by hot water) on viable aerobes and *Streptococcus thermophilus* 2646 in milk under identical temperature history conditions. The effects of the two treatments on quality of milk were also compared by assessing degrees of protein denaturation in raw and sterilized milk (raw milk being sterilized by ohmic heating or conventional heating). It was found that microbial counts and calculated decimal reduction time (D value) resulting from ohmic heating were significantly lower than those resulting from conventional heating. There was no difference in degrees of protein denaturation during the two treatments. The results suggested that ohmic heating had not only a thermallethal effect, but also a nonthermal-lethal effect on microorganisms, due to the electric current. Based on the results, we propose that ohmic heating can be effectively used to pasteurize milk with no additional protein deterioration.

Keywords: [milk](#), [ohmic heating](#), [microbial counts](#), [decimal reduction time \(D value\)](#), [protein denaturation](#)

[\[PDF \(700K\)\]](#) [\[References\]](#)

 Download Meta of Article [\[Help\]](#)
[RIS](#)

To cite this article:

Effects of Ohmic Heating on Microbial Counts and Denaturation of Proteins in Milk

Huixian SUN, Shuso KAWAMURA, Jun-ichi HIMOTO, Kazuhiko ITOH, Tatsuhiko WADA and Toshinori KIMURA, *FSTR*. Vol. **14**, 117-123. (2008) .

doi:10.3136/fstr.14.117

JOI JST.JSTAGE/fstr/14.117

Copyright (c) 2008 by Japanese Society for Food Science and Technology



[Japan Science and Technology Information Aggregator, Electronic](#)

