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[home](#) [page](#) [about us](#) [contact](#)

[us](#)

Table of Contents

IN PRESS

CJFS 2014

CJFS 2013

CJFS 2012

CJFS 2011

CJFS 2010

CJFS 2009

CJFS 2008

CJFS 2007

CJFS 2006

CJFS 2005

CJFS 2004

CJFS 2003

CJFS 2002

CJFS 2001

CJFS Home

Editorial Board

For Authors

- **Authors Declaration**
- **Instruction to Authors**
- **Guide for Authors**
- **Copyright Statement**
- **Submission**

For Reviewers

- **Guide for Reviewers**
- **Reviewers Login**

Subscription

Czech J. Food Sci.

**M. Hellwig, J. Löbner,
A. Schneider, U.**

**Schwarzenboiz, T.
Henle:
Release of Protein-
Bound N - ϵ -(γ -
glutamyl)-Lysine
during Simulated
Gastrointestinal
Digestion**

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S155

N - ϵ -(γ -glutamyl)-lysine is a crosslinking amino acid formed in food mainly during treatment with microbial transglutaminase (mTG). The purpose of this study was to investigate to which amount isopeptides are detectable in a low-molecular weight peptide fraction after simulated gastrointestinal digestion. Casein, which had been enriched with N - ϵ -(γ -glutamyl)-lysine by mTG to different extents, was subjected to simulated gastrointestinal digestion and the resulting peptide mixture fractionated into a low- and a high molecular weight fraction (below or above

200–300 Da, respectively) using semipreparative gel permeation chromatography. *N*-ε-(γ-glutamyl)-lysine was analysed in these fractions by RP-HPLC after enzymatic hydrolysis and derivatisation with phenyl isothiocyanate. *N*-ε-(γ-glutamyl)-lysine was found nearly exclusively in the high-molecular weight fraction, indicating that dietary *N*-ε-(γ-glutamyl)-lysine present in mTG-modified food proteins is not available for absorption in the intestine.

Keywords:

crosslinking; isopeptide; transglutaminase; simulated gastrointestinal digestion

[[fulltext](#)]

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