

Accepted Manuscript

Title: Identification and characterization of an angiotensin-converting enzyme inhibitory peptide derived from bovine casein

Authors: Lu Xue, Xiaodan Wang, Zhihe Hu, Zijian Wu, Lijuan Wang, Hui Wang, Ming Yang



PII: S0196-9781(17)30304-2
DOI: <https://doi.org/10.1016/j.peptides.2017.09.021>
Reference: PEP 69837

To appear in: *Peptides*

Received date: 23-12-2016
Revised date: 28-9-2017
Accepted date: 28-9-2017

Please cite this article as: Xue Lu, Wang Xiaodan, Hu Zhihe, Wu Zijian, Wang Lijuan, Wang Hui, Yang Ming. Identification and characterization of an angiotensin-converting enzyme inhibitory peptide derived from bovine casein. *Peptides* <https://doi.org/10.1016/j.peptides.2017.09.021>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Identification and characterization of an angiotensin-converting enzyme inhibitory peptide derived from bovine casein

Lu Xue¹, Xiaodan Wang, Zhihe Hu, Zijian Wu, Lijuan Wang, Hui Wang, Ming Yang

Tianjin Key Laboratory of Food Biotechnology, College of Biotechnology and Food Science, Tianjin University of Commerce, Tianjin300134, China

¹Corresponding author. Tel: +86-13920313507; e-mail: xuelu@tjcu.edu.cn; Fax: +86-022-26687515

Highlight

- A casein-derived angiotensin I-converting enzyme inhibitory peptide, YQKFPQYLQY (YQK) was purified and identified, with its IC₅₀ value of 11.068 μM.
- The inhibitory mode of YQK was competitive.
- YQK was stable against heat, pH and the gastrointestinal enzymes pepsin and trypsin.
- Significant decreases of systolic blood pressure induced by oral YQK in SHR rats support its antihypertensive effect.

Abstract

In this study, we identified a novel angiotensin-I-converting enzyme (ACE) inhibitory peptide, YQKFPQYLQY (YQK), derived from bovine casein. Casein was hydrolyzed using pepsin and trypsin. The target peptide, YQK, was separated from the hydrolysate by ultrafiltration and Sephadex G-15 chromatography. The IC₅₀ value of YQK was 11.1 μM. YQK retained its ACE inhibitory activity under various temperature and pH conditions. It was also stable against the digestive enzymes pepsin and trypsin. The Lineweaver–Burk plot suggested that the inhibitory mode of YQK was competitive. Furthermore, its antihypertensive effects in spontaneously hypertensive rats (SHRs) also revealed that oral administration of YQK can significantly decrease systolic blood pressure. These results suggested that YQK may have potential applications in functional foods or pharmaceuticals as an antihypertensive agent.

Download English Version:

<https://daneshyari.com/en/article/8347603>

Download Persian Version:

<https://daneshyari.com/article/8347603>

[Daneshyari.com](https://daneshyari.com)