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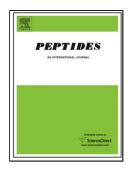
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### ACCEPTED MANUSCRIPT

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

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#### Hightlight

- A casein-derived angiotensin I-converting enzyme inhibitory peptide, YQKFPQYLQY
  (YQK) was purified and identified, with its IC<sub>50</sub> 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-15chromatography. The IC<sub>50</sub> 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.

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