Isolation and Identification of Peptidic $\alpha$-Glucosidase Inhibitors Derived from Sardine Muscle Hydrolyzate

Toshiro Matsui, Tomoyuki Oki and Yutaka Osajima

Department of Food Science and Technology, Faculty of Agriculture, Kyushu University, 6-10-1 Hakozaki, Higashi-ku, Fukuoka 812-8581, Japan

Z. Naturforsch. 54c, 259–263 (1999); received August 25/October 5, 1998

$\alpha$-Glucosidase Inhibition, Diabetes, Sardine Muscle Hydrolyzate, Peptide

We report here the isolation of $\alpha$-glucosidase (AGH) inhibitory peptides derived from sardine muscle hydrolyzate, which was prepared by digestion with Bacillus licheniformis alkaline protease. As a result of reversed-phase HPLC purification, two AGH inhibitory peptides were isolated from a DEAE-Sephadex A-25 column eluate. The peptides were identified as follows: Val–Trp ($IC_{50} = 22.6 \text{ mM}$) and Try–Tyr–Pro–Leu ($IC_{50} = 3.7 \text{ mM}$). AGH inhibitory studies of Try–Tyr–Pro–Leu and its derivatives demonstrated the importance of the tripeptide chain length as well as the hydrophobic aromatic amino acid tyrosine at the N-terminus, aliphatic amino acids at the C-terminus, as well as an amide proton from the peptide chain at the middle position of the tri-peptide to develop AGH inhibition activity.

Reprint requests to Dr. T. Matsui. Fax: +81-92-6423030, e-mail: tmatsui@agr.kyushu-u.ac.jp