

 BIOMEDICAL RESEARCH ON TRACE ELEMENTS  
Japan Society for Biomedical Research on Trace Elements

[Available Issues](#) | [Japanese](#)

Author:  Keyword:   [ADVANCED](#)



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

ONLINE ISSN : 1880-1404

PRINT ISSN : 0916-717X

## Biomedical Research on Trace Elements

Vol. 17 (2006) , No. 4 360-364

[\[PDF \(236K\)\]](#) [\[References\]](#)

### Inhibitory Effect of Oxovanadium(IV), Copper(II), and Zinc(II) Ions on the Activity of an Alpha-glucosidase from a *Saccharomyces sp.*

Yutaka Yoshikawa<sup>1)</sup>, Ryoko Hirata<sup>1)</sup> and Hiromu Sakurai<sup>1)</sup>

1) Department of Analytical and Bioinorganic Chemistry, Kyoto Pharmaceutical University,

(Received: August 31, 2006)

(Accepted: November 1, 2006)

#### Abstract:

We investigated the *in vitro* and *in vivo* effects of metal ions on the activity of an alpha-glucosidase (*Saccharomyces sp.*).  $\text{CuSO}_4$ ,  $\text{ZnSO}_4$ , and  $\text{VOSO}_4$  significantly inhibited the alpha-glucosidase activity *in vitro*. Additionally, we examined their effects on the blood glucose level by performing oral carbohydrate tolerance tests in both normal ddY mice and streptozotocin-induced diabetic mice. After oral administration of these three metal compounds, the elevation in the blood glucose levels in mice administered disaccharide (sucrose) was significantly suppressed in comparison with untreated mice. On the other hand, the elevation in the blood glucose levels in mice administered monosaccharide (glucose) was not suppressed when such compounds or a vehicle was administered. The results suggested that some metal ions suppress disaccharide digestion probably due to the inhibition of the alpha-glucosidase activity in the epithelium of the small intestine.

**Key words:** Alpha-glucosidase inhibition, Anti-diabetic effect, STZ-mice, Oral carbohydrate tolerance test, Metal ions

[\[PDF \(236K\)\]](#) [\[References\]](#)

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

[RIS](#)

[BibTeX](#)

Yutaka Yoshikawa, Ryoko Hirata and Hiromu Sakurai, "Inhibitory Effect of Oxovanadium (IV), Copper(II), and Zinc(II) Ions on the Activity of an Alpha-glucosidase from a *Saccharomyces sp.*", Biomedical Research on Trace Elements, Vol. **17**, pp.360-364 (2006) .

---

JOI JST.JSTAGE/brte/17.360

Copyright (c) 2007 by Japan Society for Biomedical Research on Trace Elements

---



---

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

