ONLINE ISSN : 1880-7291
PRINT ISSN : 1344-7882

Journal of Applied Glycoscience
Vol. 52 (2005) , No. 3 pp.273-276

[PDF (169K)] [References]

Inactivation of α-Amylases from *Thermoactinomyces vulgaris* R-47, TVA I and TVA II, by ω-Epoxyalkyl α-D-Glucopyranoside

Nobuo Uotsu[1)], Takashi Tonozuka[1)], Takehiro Yokota[1)], Atsushi Kobayashi[1)], Atsushi Nishikawa[1)] and Yoshiyuki Sakano[1)]

1) Department of Applied Biological Science, Tokyo University of Agriculture and Technology

(Received January 9, 2005)
(Accepted February 28, 2005)

We found here that ω-epoxyalkyl α-D-glucopyranosides consisting of three, four and five alkyl carbons (α-E3G, α-E4G and α-E5G, respectively), which are known to be affinity-labeling reagents of β-amylase, had the effect of inactivating two pullulan-hydrolyzing α-amylases from *Thermoactinomyces vulgaris* R-47, TVA I and TVA II, at high concentration (*ca*. 0.1-1.5 M). The inactivation exhibited saturation kinetics of a two-step mechanism, and an inactivation rate constant, k, and equilibrium dissociation constant, K_R, of α-E5G were calculated. The k/K_R values of α-E5G for TVA I and TVA II were 13.1×10^{-4} and 6.41×10^{-4} $M^{-1} \cdot S^{-1}$ respectively. In terms of the power of inactivation, the orders for TVA I and TVA II were α-E5G>α-E3G≈α-E4G, and α-E5G>α-E3G>α-E4G, respectively. The findings indicated that the relation between the lengths of the alkyl carbons and the inactivation of TVA I and TVA II differs from that for β-amylase and isomalto-dextranase.

Key words: α-amylase, ω-epoxyalkyl α-D-glucopyranoside, affinity labeling, *Thermoactinomyces vulgaris*

[PDF (169K)] [References]

Download Meta of Article[Help]
RIS