α-Glucosidase (Maltase) from Microorganism

AGH-211

SPECIFICATIONS

Name	α-D-Glucoside glucohydrolase
EC	3.2.1.20
Appearance	White amorphous powder lyophilized
Activity	Grade II, 20 U/mg-solid or more
Contaminants	α amylase ≤ 1.0×10^{-5} %
Stabilizers	Bovine serum albumin (BSA)
Stability	Stable at -20 ℃ for at least one year
Molecular weight	65,000
Isoelectric point	5.2
Michaelis constant	6.3×10^{-4} M (p-Nitrophenyl-α-D-glucopyranoside)
Inhibitors	Ag^{+}, Hg^{2+}, PCMB, MIA
Optimum pH	6.0 - 7.0
Optimum temperature	60 ℃
pH Stability	pH 5.0 - 9.0
Thermal stability	below 60 ℃ (pH 7.0, 15min)

Substrate*	Relative hydrolysis rate**	Substrate*	Relative hydrolysis rate**
PNPG	100.0	Maltose	271.0
$PNPG_2$	205.0	Maltotriose	203.0
$PNPG_3$	284.0	Maltotetraose	168.0
$PNPG_5$	164.0	Maltopentaose	100.0

* : Substrate concn. 2.2mM

** : Glucose-forming activity, pH 6.8 at 37℃

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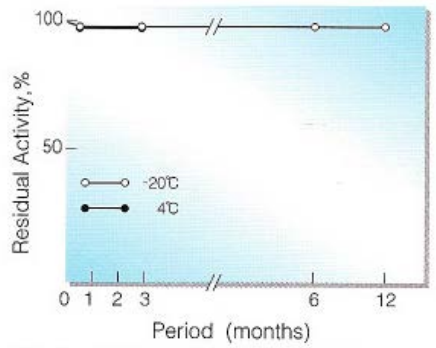

Fig.1. Stability (Powder from)

[kept under dry conditions]

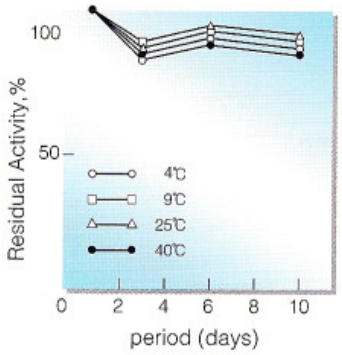

Fig.2. Stability (Liquid form)

[in 50mM PIPES buffer solution, pH7.0 (contg. 0.5mM $CaCl_2$, 0.1% detergent) enzyme concn,:5U/ml]

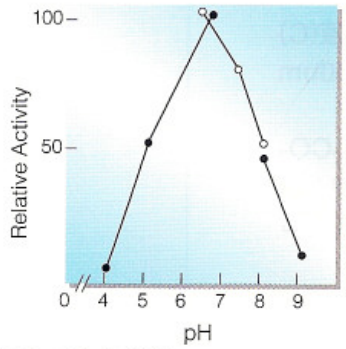

Fig.3. pH-Activity

[37℃, 15 min-reaction in 100mM buffer solution: ●, pH4.0-6.0 acetate ; O, pH6.0-8.0, phosphate; ■, pH8.0-9.0, borate]

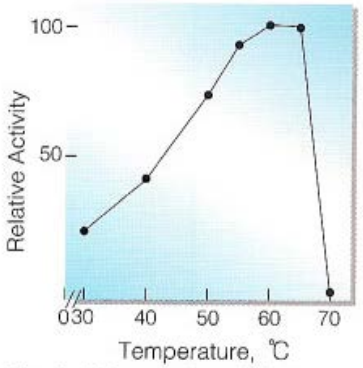

Fig.4. Thermal activity

[15 min-reaction in 100mM phosphate buffer, pH7.0]

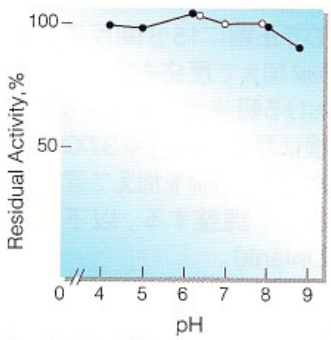

Fig.5. pH-Stability

[25℃, 20hr-treatment with 50mM buffer solution contg; 0.2% of BSA: ●, pH4.0-6.0 acetate: ○, pH6.0-8.0, phosphate; ■, pH8.0-9.0, borate. enzyme concn. : 5U/ml]

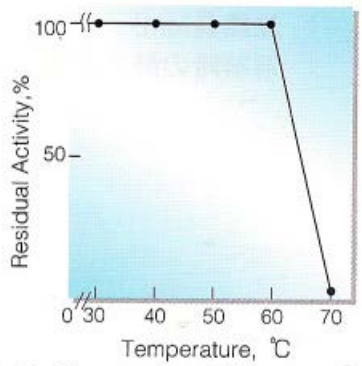

Fig.6. Thermal stability

[15min-treatment with 0.2M K-phosphate buffer, pH7.0 contg. 1mM EDTA and 0.05% Tween20. enzyme concn.: 5U/ml]