Glycerol Dehydrogenase from Cellulomonas sp.

GYD-301

SPECIFICATIONS

Product name	Glycerol:NAD^+ 2-oxidoreductase
EC	1.1.1.6
Appearance	White amorphous powder, lyophilized
Activity	Grade III, 50 U/mg-solid or more (containing 50% of stabilizers)
Contaminants	NADH oxidase : ≤ 1.0×10^{-3} %
Stabilizers	BSA
Stability	Stable at - 20℃ for at least 12 month
Molecular weight	approx. 390,000
Isoelectric point	4.4±0.1
Michaelis constants	1.1×10^{-2}M (Glycerol), 8.9×10^{-5}M (NAD^+)
Structure	10 subunits (42,000) per mol of enzyme
Inhibitors	p-Chloromercuribenzoate, o-phenanthroline, monoiodoacetate, heavy metal ions (Co^{2+}, Ni^{2+}, Cu^{2+}, Zn^{2+}, Cd^{2+})
Optimum pH	10.0 - 10.5
Optimum temperature	50℃
pH Stability	pH 7.5 - 10.5 (25℃, 20hr)
Thermal stability	below 55℃ (pH 7.5, 15min)
Substrate specificity	This enzyme has the highest specificity for glycerol and 1,2-propanediol, and also oxidizes glycerol-α-monochlorohydrin, ethylene glycol and 2,3-butanediol. The oxidative reaction is stimulated by K^+, NH_4^+ and Rb^+.

ENZYMES BY SORACHIM

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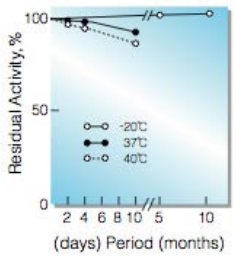

Fig.1. Stability (Powder form)
(kept under dry conditions)

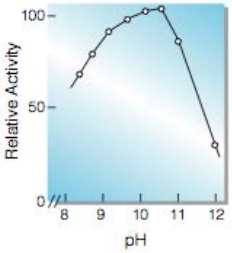

Fig.3. pH-Activity
(25℃, in 0.1M K_2CO_3-$NaHCO_3$ buffer)

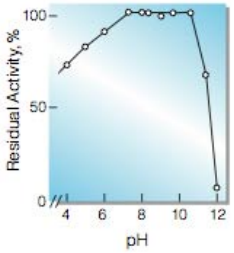

Fig.5. pH-Stability
[25℃, 20hr-treatment with 50mM buffer solution pH4.0-6.0,acetate: pH6.0-8.5, K-phosphate;pH9.0-11.8, K_2CO_3-$NaHCO_3$]

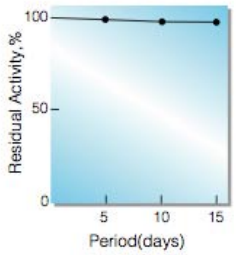

Fig.2. Stability (Liquid form at 37℃)
[enzyme concentration: 400-500U/ml
buffer composition: 50mM K-phosphate buffer contg.3.2M ammonium sulfate and 0.2% BSA, pH7.0]

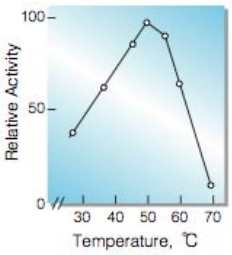

Fig.4. Temperature activity
[in 0.1M K_2CO_3-$NaHCO_3$ buffer, pH10.5]

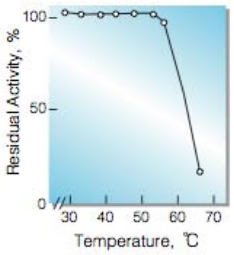

Fig.6. Thermal stability
[15min-treatment with 50mM K-phosphate buffer, pH 7.5]