

ENZYMES

BY

SORACHIM

Glucose Dehydrogenase (FAD dependent) from microorganism GLD-351

SPECIFICATIONS

Name	D-Glucose:(flavine adenine dinucleotide)-dehydrogenase
EC	1.1.99.10
Appearance	Yellowish amorphous powder lyophilized
Activity	Grade III, 500U/mg-solid or more
Contaminants	Glucose dehydrogenase < 2.0×10^{-2} % (NAD-dependent) Hexokinase < 2.0×10^{-2} %, Glucose oxidase < 2.0×10^{-2} % Glucoamylase < 1.0×10^{-2} %
Stability	Stable at - 20°C for at least 12 months
Molecular weight	approx. 100,000 (by gel filtration)
Michaelis constant	4.8 mM (D-Glucose)
Inhibitors	Cu^{2+} , Pb^{2+} , Ag^+
Optimum pH	7.0
Optimum temperature	47°C
pH Stability	3.5 - 8.5 (25°C, 16hr)
Temperature stability	below 50°C (pH 7.5, 30min)

ENZYMES

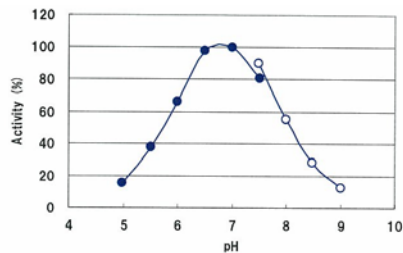
BY

SORACHIM

Glucose Dehydrogenase (FAD dependent) from microorganism GLD-351

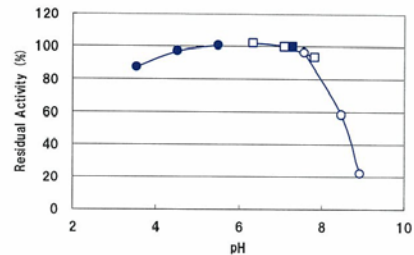
SPECIFICATIONS

(1) pH-Activity



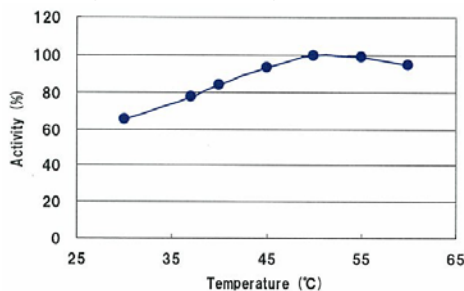
[37°C , in 50mM buffer solution
● PIPES 5.0-7.5 ○ Tris-HCl 7.5-9.0]

(2) pH-Stability



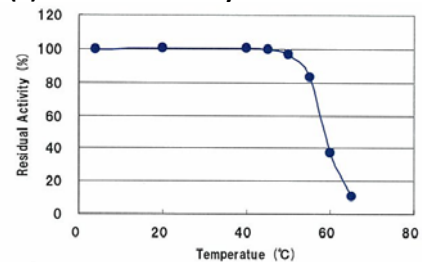
[25°C , 16hr-treatment with 0.1M buffer solution
● pH 3.5-6.5 Acetate ○ pH 6.0-8.0 K-phosphate
■ pH 6.5-7.5 PIPES ○ pH 7.5-9.0 Tris-HCl]

(3) Temperature-Activity



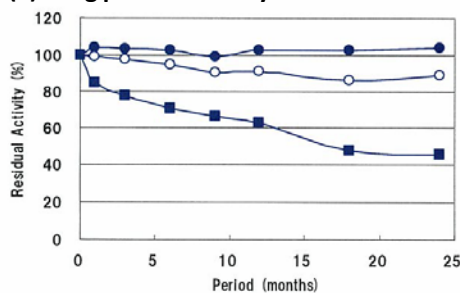
[in 42mM PIPES-NaOH buffer solution , pH6.5]

(4) Thermal-Stability



[15min-treatment with 50mM K-phosphate buffer , pH6.0
Enzyme concentration : 100U/ml]

(5) Long period stability



[Kept FAD-GDH powder under different temperature condition
(● -20°C , ○ 4°C , ■ 25°C) for a prolong period , and
measure the residual activity.]

ENZYMES

BY

SORACHIM

Glucose Dehydrogenase (FAD dependent) from microorganism
GLD-351

SPECIFICATIONS

Substrate specificity

Substrate (4mM)	Relative Activity (%)
D-Glucose	100
Maltose	0.0
Maltotriose	0.0
Maltotetraose	0.0
D-Galactose	0.0
D-Mannose	0.6
D-Xylose	18.2
D-Trehalose	0.0
2-deoxy-D-Glucose	18.9
D-Arabinose	0.0
D-Fructose	0.0
D-Melezitose	0.0
Sucrose	0.0
Glycerol	0.0

Measure the FAD-GDH activity with PMS (phenazin-methosulfate) and DCPIP (2,6-dichlorophenol-indophenol) as a mediator .