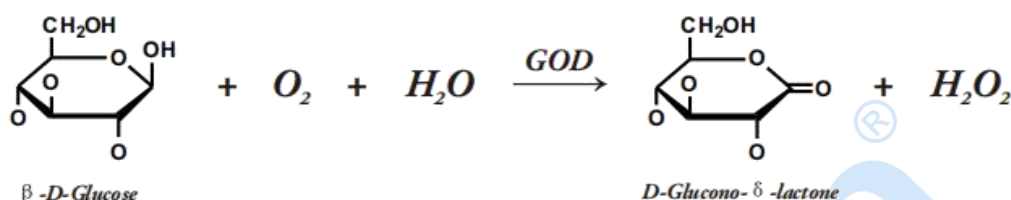


Glucose Dehydrogenase (GOD)

G774044

Glucose oxidase (GOD, EC 1.1.3.4) exhibits high specificity and can specifically catalyze the oxidation reaction of β -D-glucose. Its systematic name is β -D-glucose:oxygen 1-oxidoreductase. In the absence of catalase, the core of the reaction is that " β -D-glucose is oxidized by O_2 to gluconolactone, with the simultaneous production of H_2O_2 ".

Reaction



Storage Conditions

Store at -20°C (3 years). Upon delivery aliquot. Avoid freeze/thaw cycle. Store in the dark. Desiccated.

Product description

Appearance: Yellow amorphous powder

Source: *Aspergillus niger*

Enzyme Commission Number: EC 1.1.3.4

CAS Number: 9001-37-0

Specific activity: $\geq 300\text{U/mg protein}$

Unit definition: One unit will oxidize one micromole of glucose per min at pH 5.7 at 37°C .

Properties

Molecular weight: approx 100 kDa (SDS-PAGE)

Isoelectric point: 5.2

Michaelis constant: $4.9 \times 10^{-2}\text{ M}$ (D-Glucose)

Optimum pH: 4.5~6.5 { Fig.1 }

Optimum temperature: 40°C ~ 60°C { Fig.2 }

pH Stability: 5.0~7.5 (25°C , 18hr) { Fig.3 }

Thermal stability: $< 40^{\circ}\text{C}$ (pH 5.7, 60min) { Fig.4 }

Inhibitors: Cu^{2+} , Fe^{2+} , Mg^{2+}

Effect of various chemicals: { Table 1 }

Table 1

Effect of Various Chemicals on GOD

[The enzyme dissolved in 10mM MES buffer, pH 5.7, containing 0.1% triton X-100 (10U/ml) was incubated with each chemical at 37°C for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
CaCl ₂	2.0	100%
CoCl ₂	2.0	95%
CuSO ₄	2.0	32%
FeCl ₃	2.0	77%
MgSO ₄	2.0	71%
MnSO ₄	2.0	83%
NiCl ₂	2.0	93%
ZnSO ₄	2.0	100%
K ₄ Fe(CN) ₆	2.0	100%

Chemical	Concn. (mM)	Residual activity
BME	2.0	89%
NEM	2.0	84%
EDTA	5.0	90%
NaN ₃	20.0	90%
Proclin	0.045%	93%
Na-cholate	0.10%	94%
SDS	0.05%	92%
Triton X-100	0.10%	92%
Tween 20	0.10%	95%

Fig. 1 pH Activity

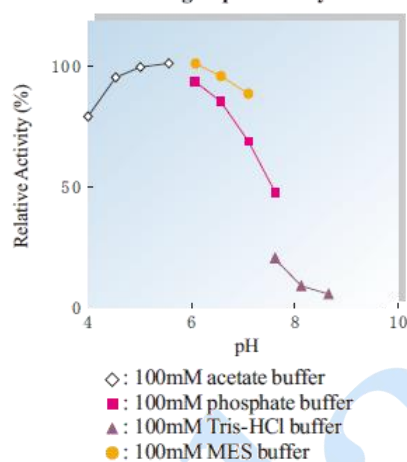


Fig. 2 pH Stability

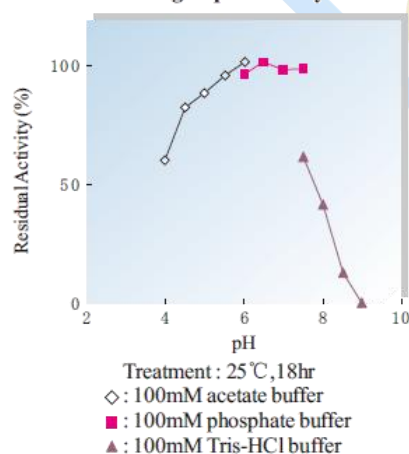


Fig. 3 Temperature activity

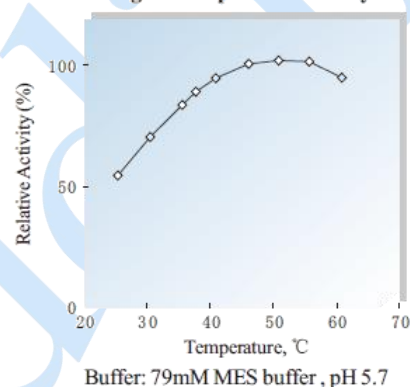


Fig. 4 Thermal stability

