PYRANOSE OXIDASE

pyranose:oxygen 2-oxidoreductase

REACTION:

$$D\text{-}Glucose + O_2 \overset{PROD}{\rightleftharpoons} 2\text{-}Dehydro\text{-}D\text{-}glucose + H_2O_2$$

PRODUCT DESCRIPTION

Catalog No.:	qs50021
Appearance:	Yellow liquid
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.3.10
CAS Number:	37250-80-9
Storage temperature:	2−8℃
Activity:	≥250U/ml
Unit definition:	One unit will convert one micromole of D-Glucose to 2-Dehydro -D-glucose per minute at pH 7.0 at 37℃.

PROPERTIES

Molecular weight:	70kDa (SDS-PAGE)	
Isoelectric point:	5.9	
Michaelis constant:	8.6×10^{-3}M(1.5 anlydroglucitol) 7.12×10^{-4}M (D-glucose)	
Optimum pH:	6.0-7.5	{Fig. 1}
Optimum temperature:	60℃	{Fig. 3}
pH Stability:	4.5-6.0(25℃,25hr)	{Fig. 2}
Thermal stability:	40-55℃ (pH 7.0, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+}	
Effect of various chemicals:		{Table 1}

Table 1.

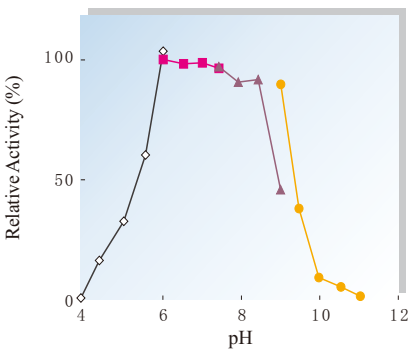
Effect of Various Chemicals on PROD

[The enzyme dissolved in 0.1M Tris-HCl buffer, pH 7.0 (5.2U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	102%
$CoCl_2$	2.0	101%
$CuSO_4$	2.0	76%
$FeCl_3$	2.0	100%
$MgSO_4$	2.0	103%
$MnSO_4$	2.0	102%
$NiCl_2$	2.0	101%
$ZnSO_4$	2.0	105%
BME	2.0	100%

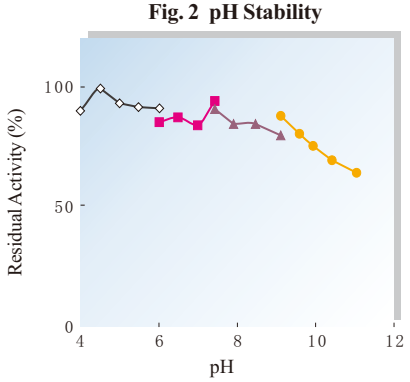
Chemical	Concn. (mM)	Residual activity
NEM	2.0	91%
EDTA	5.0	102%
NaN_3	20.0	101%
Proclin	0.045%	99%
Na-cholate	0.10%	99%
SDS	0. 05%	93%
Triton X-100	0.10%	106%
Tween 20	0.10%	112%
Boric Acid-Borax	2.0	92%

Fig. 1 pH Activity



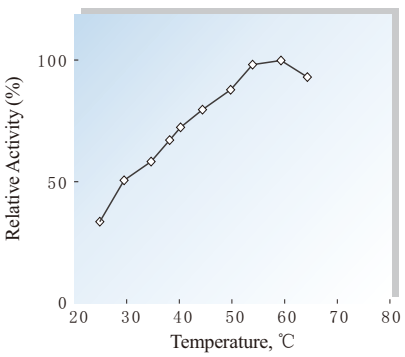
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer
●: 50mM glycine buffer

Fig. 2 pH Stability



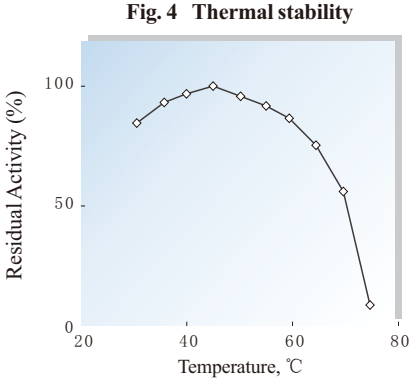
Treatment : 25℃,20hr
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer
●: 50mM Glycine buffer

Fig. 3 Temperature activity



Buffer: 100mM Tris-HCl buffer , pH 7.0

Fig. 4 Thermal stability



Treatment: 100mM Tris-HCl buffer, pH 7.0, 30min