ASCORBATE OXIDASE

L-Ascorbate:oxygen oxidoreductase

REACTION:

$$L\text{-}Ascorbate\ acid + \tfrac{1}{2}O_2 \xrightarrow{ASO} Dehydroascorbic\ acid + H_2O$$

PRODUCT DESCRIPTION

Catalog No.:	SDZ500221
Appearance:	Blue amorphous powder
Source:	Plant
Enzyme Commission Number:	EC 1.10.3.3
CAS Number:	9029-44-1
Storage temperature:	-20℃
activity:	⩾ 100U/mg solid
Unit definition:	One unit causes the decrease of one micromole of ascorbic acid per min at pH 5.6 at 30℃.

PROPERTIES

Molecular weight:	67kDa (SDS-PAGE)	
Michaelis constant:	3.6×10^{-4}M	
Optimum pH:	6.0	{Fig. 1}
Optimum temperature:	50℃	{Fig. 3}
pH Stability:	5.5~9.5 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 50℃ (pH 7.0, 30min)	{Fig. 4}
Inhibitors:	Fe^{3+},Ni^{2+},BME,SDS,Proclin	
Effect of various chemicals:		{Table 1}

Table 1.

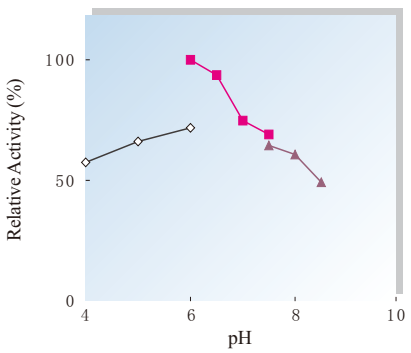
Effect of Various Chemicals on ASO

[The enzyme dissolved in 50mM PIPES buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	100%
$CoCl_2$	2.0	102%
$CuSO_4$	2.0	160%
$FeCl_3$	2.0	76%
$MgSO_4$	2.0	104%
$MnSO_4$	2.0	100%
$NiCl_2$	2.0	70%
$ZnSO_4$	2.0	102%

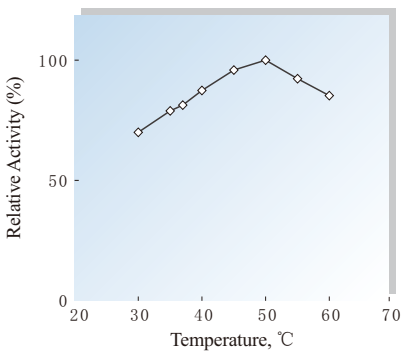
Chemical	Concn. (mM)	Residual activity
BME	2.0	80%
NEM	2.0	93%
EDTA	5.0	102%
NaN_3	20.0	97%
Proclin	0.045%	73%
Na-cholate	0.10%	111%
SDS	0. 05%	8%
Triton X-100	0.10%	108%
Tween 20	0.10%	112%

Fig. 1 pH Activity



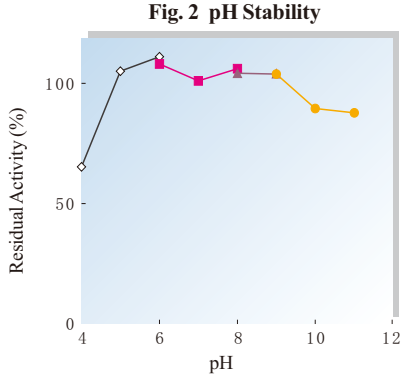
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer

Fig. 3 Temperature activity



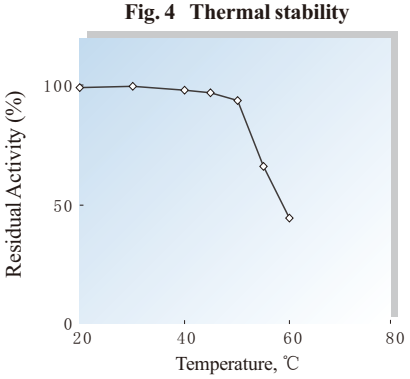
Buffer: 100mM K-phosphate buffer , pH 5.6

Fig. 2 pH Stability



Treatment : 25℃,20hr
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer
● : 100mM glycine-NaOH buffer

Fig. 4 Thermal stability



Treatment: 10mM K-phosphate buffer with 0.2%BSA, pH 7.0,30min