上海源叶生物科技有限公司
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重组乙醇脱氢酶 (ADH)

Reaction

$$CH_3CH_2OH + NAD^+ \xrightleftharpoons{ADH} CH_3CHO + NADH + H^+$$

Product description

Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.1.1
CAS Number:	9031-72-5
Storage temperature:	-20℃
Specific activity:	≥100U/mg protein
Unit definition:	One unit will convert one micromole of ethanol to acetaldehyde per min at pH8.8 at 25℃.

Properties

Stability:	Stable at -20℃for at least two years	
Molecular weight:	40 kDa (SDS-PAGE)	
Isoelectric point:	6.5	
Michaelis constant:	8.0×10^{-4} M (Ethanol)	
Optimum pH:	9.5~10.5	{Fig. 1}
Optimum temperature:	50℃~60℃	{Fig. 3}
pH Stability:	6.0~9.5 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 55℃(pH 7.5, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},Ni^{2+},Zn^{2+},NEM,Proclin,Na-cholate,SDS,Triton X-100,Tween20	
Effect ofvarious chemicals:		{Table 1}

Table 1.

Effect of Various Chemicals on ADH

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

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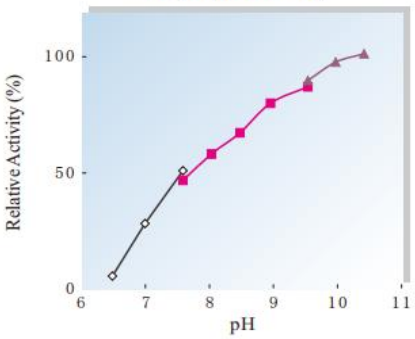
Chemical	Concn.（mM）	Residual activity
None	-	100%
$CaCl_2$	2.0	93%
$CoCl_2$	2.0	100%
$CuSO_4$	2.0	26%
$FeCl_3$	2.0	100%
$MgSO_4$	2.0	100%
$MnSO_4$	2.0	95%
$NiCl_2$	2.0	76%
$ZnSO_4$	2.0	40%
$K_4Fe(CN)_6$	2.0	86%

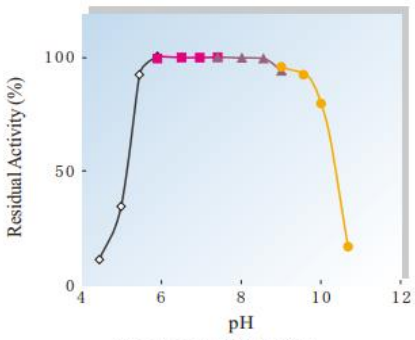
Chemical	Concn.（mM）	Residual activity
BME	2.0	100%
NEM	2.0	25%
EDTA	5.0	100%
NaN_3	20.0	100%
Proclin	0.045%	8%
Na-cholate	0.10%	24%
SDS	0.05%	24%
Triton X-100	0.10%	61%
Tween 20	0.10%	36%

Fig. 1 pH Activity



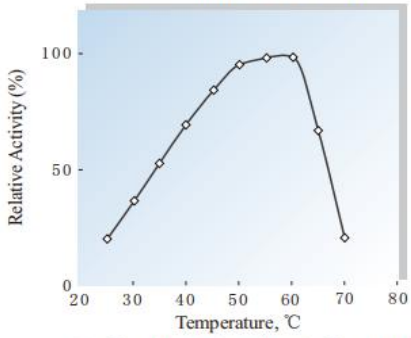
◇: 50mM phosphate buffer
■: 50mM Tris-HCl buffer
▲: 50mM glycine-NaOH buffer

Fig. 2 pH Stability



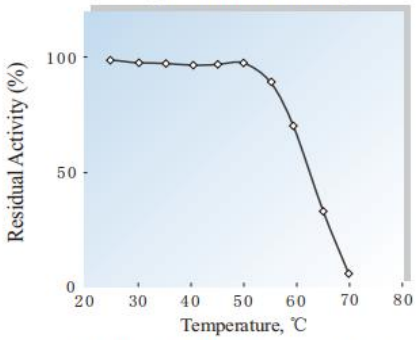
Treatment : 25℃,20hr
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer
●: 50mM glycine-NaOH buffer

Fig. 3 Temperature activity



Buffer: 10mM phosphatebuffer , pH7.5

Fig. 4 Thermal stability



Treatment: 10mM phosphatebuffer , pH7.5, 30min