

MALATE DEHYDROGENASE

from Microorganism

L-Malate: NAD⁺ oxidoreductase (EC 1.1.1.37)**PREPARATION and SPECIFICATION**

Appearance	: White amorphous powder, lyophilized	
Activity	: 40U/mg-solid or more	
Contaminants	: Glutamate oxaloacetate transaminase	≤1.0×10 ⁻³ %
	Lactate dehydrogenase	≤1.0×10 ⁻³ %
	NADH oxidase	≤1.0×10 ⁻³ %

PROPERTIES

Stability	: Product shipped on dry ice, but long-term storage should be at -20°C.	
Molecular weight	: 33.4 kDa	
Isoelectric point	: 6.25	
Michaelis constant	: 4.3×10 ⁻⁵ M (Oxaloacetate), 9.6×10 ⁻⁵ M (NADH)	
Inhibitors	: Hg ²⁺ , Ag ⁺ , IAA	
Optimum pH	: 7.5	(Fig.1)
Optimum temperature	: 50°C	(Fig.2)
pH stability	: pH 5.8~10.5 (25°C, 20hr)	(Fig.3)
Thermal stability	: below 50°C (pH 7.5, 15 min)	(Fig.4)
Effect of various chemicals	: (Table 1)	

UNIT DEFINITION

One unit causes the oxidation of one micromole of NADH per minute at pH 7.5 at 30°C

APPLICATIONS

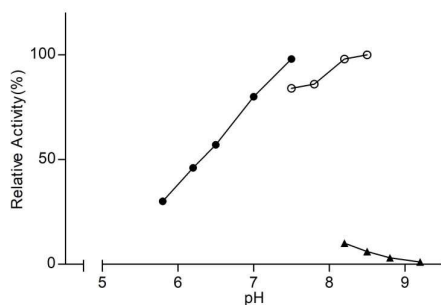
This enzyme is useful for enzymatic determination of L-malate and of glutamate oxaloacetate transaminase (GOT) in clinical analysis.

Manufactured in an ISO 9001 certified facility: Suzhou SignalChem Biotechnologies Corp.

Table 1. Effect of Various Chemicals on Malate dehydrogenase

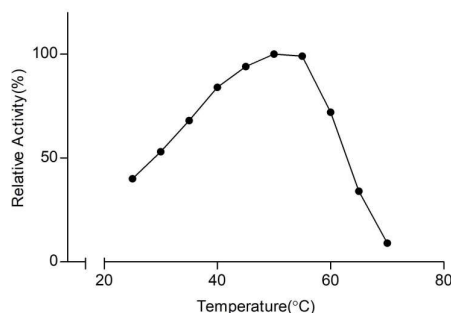
The enzyme solution was dissolved in 0.1M K-phosphate buffer, pH 7.5 containing 0.2% of BSA (28U/ml) and incubated with each chemical at 25°C for 1hr.

Chemical	Concn.(mM)	Residual activity(%)	Chemical	Concn.(mM)	Residual activity(%)
None	—	100	BME	2	107
CaCl ₂	2	102	Hydroxylamine	2	105
MgSO ₄	2	108	EDTA	5	108
ZnSO ₄	2	103	NaF	20	104
NiCl ₂	2	104	NaN ₃	20	109
CoCl ₂	2	100	Borate	50	99
MnCl ₂	2	100	Proclin-300	0.045% (v/v)	105
FeCl ₃	2	102	SDS	0.05%	99
CuSO ₄	2	104	Na-Cholate	0.1%	105
AgNO ₃	2	82	Tween-20	0.1% (v/v)	103
HgSO ₄	2	1	Triton X-100	0.1% (v/v)	106
NEM	2	98	Span-20	0.1% (v/v)	103
IAA	2	3	Brij-35	0.1%	102

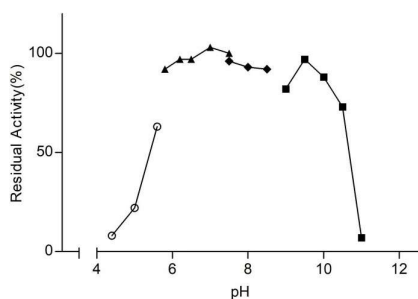
Fig.1. pH-Activity


30°C in the following buffer solution:

- 0.1M K-phosphate
- 0.1M Tris-HCl
- ▲ 0.1M Borate buffer

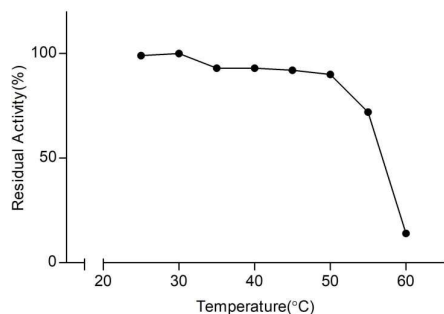
Fig.2. Temperature Activity


in 50mM K-phosphate buffer, pH7.5

Fig.3. pH-Stability


25°C, 20hr-treatment with the following buffer solution:

- 0.1M Acetate buffer
- ▲ 0.1M K-phosphate buffer
- 0.1M Tris-HCl
- 0.1M Borate buffer

Fig.4. Thermal Stability


15min-treatment with 0.1M K-phosphate buffer, pH7.5