

Technical Product Data Sheet											
Tech. Sheet #	004	Version	1.2	Created:	June 17th 2016	by	R. Peralta	Last updated	October 6 th , 2017	by	P.Cáceres
Product Name	Recombinant catalase		Product Code	enz_cat_004		Current Dev. Phase		Finished			
Core information											
Product Type	Lyophilized enzyme	Producing microorganism		<i>Escherichia coli</i> (recombinant)		Microorg. code	BL21 (DE3)	Origin	Psychrotolerant Bacteria		
EC Number	1.11.1.6			CAS-No.			9001-05-2				
Product Description	Catalase (CAT) is an oxidoreductase enzyme that catalyses the decomposition of hydrogen peroxide into molecular oxygen and water.										
Temp Range °C	20-80	Opt. temp °C	30-40	Thermo stability	Keeps 50% of its activity after 7 hours of exposure at 50°C	pH range	4.0-9.5	Opt. pH	7.5		
Substrate	H ₂ O ₂										
Products	H ₂ O and O ₂										
Reaction	2 H ₂ O ₂ → 2 H ₂ O + O ₂										
U (Unit definition)	One unit is defined as the decomposition of 1 μmol of H ₂ O ₂ in 1 minute at 25°C at pH 7.0. The rate of disappearance of H ₂ O ₂ is observed at 240 nm.										
Specific activity	≥ 8000 U/mg protein										
Protein concentration	≥ 40% (w/w)										
Molecular mass	≈ 220 kDa			Number of subunits	Four. Each subunit has ≈ 55 kDa.						
Substrate chirality	No data available										
Product chirality	No data available										
Alternative substrates	No determined										
Form	Lyophilized powder										
Other components	0.05 M Tris base and 0.5 M NaCl (before lyophilizing)										
Storage temperature	-20°C										
Stability	At -20°C, it maintains the reported activity (≥ 8000 U/mg) at least for 2 years										
Shipping conditions	Inside a Styrofoam box with icepacks										

pH dependence

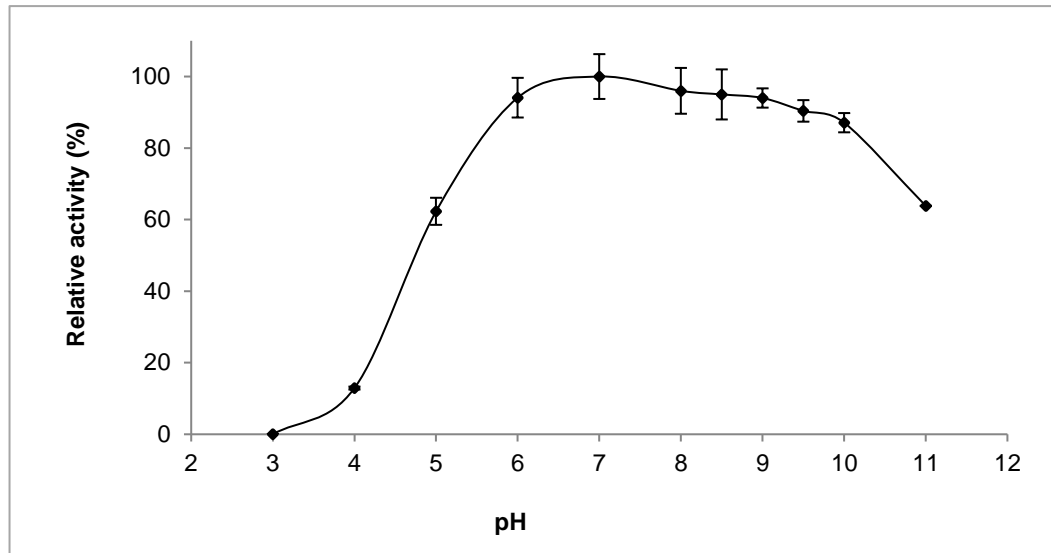


Fig 1. pH dependence of the rec CAT (enz_cat_004). Activity was measured by monitoring pH from 3 to 11 at 25°C.

Temperature dependence

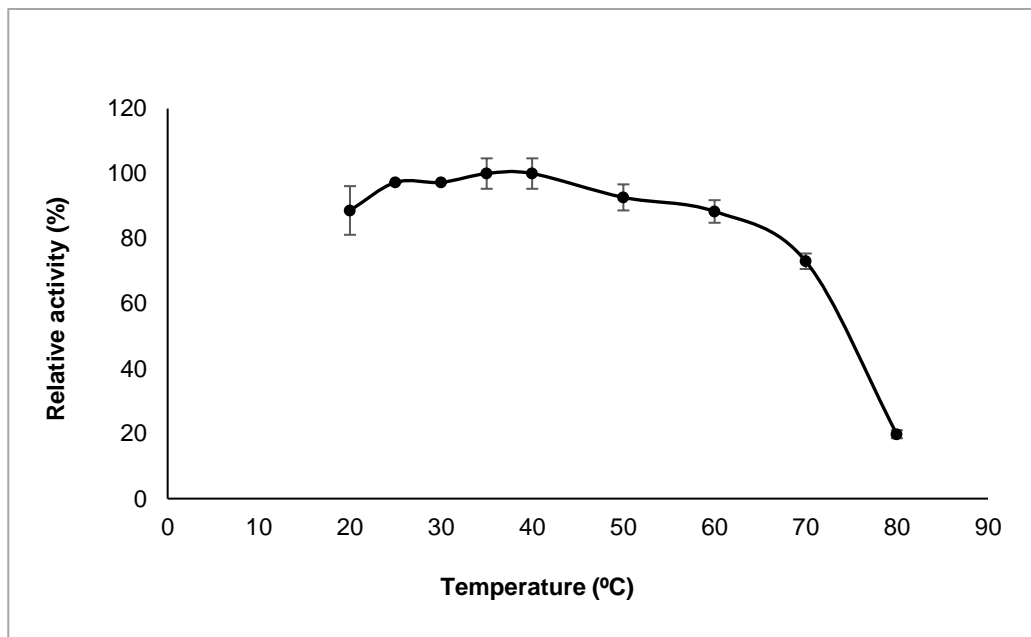


Fig 2. Temperature dependence of the rec CAT (enz_cat_004). Activity was measured by monitoring temperature from 20 to 80°C using 50 mM potassium phosphate buffer (pH 7.0).

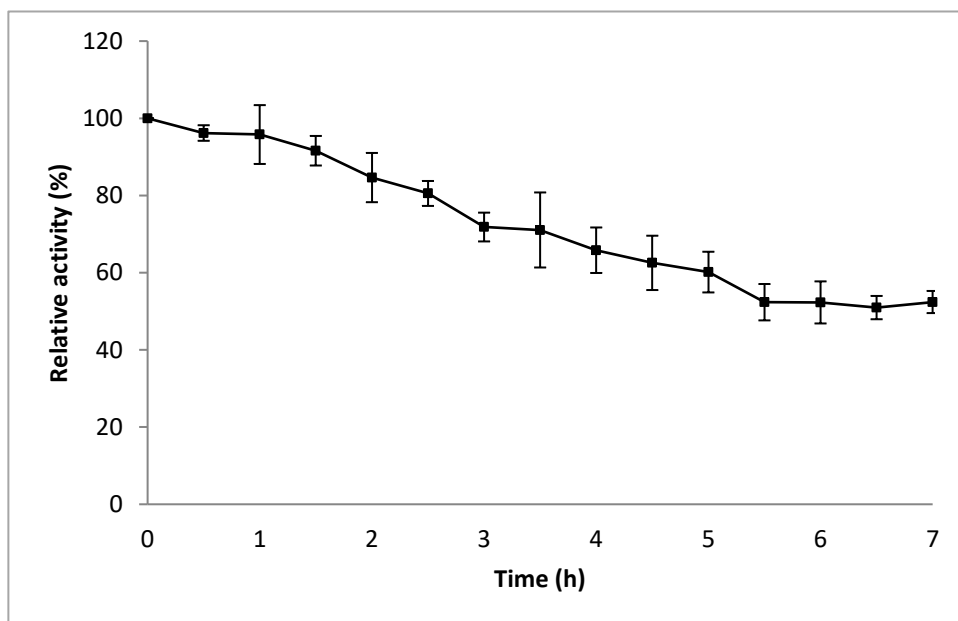
Thermo-stability


Fig 3. Thermostability of the rec CAT (enz_cat_004). Activity was monitored at 50° C using 50 mM potassium phosphate buffer (pH 7.0).

Scientific and Technical References

1. Yoon-Suk Kang et al. (2006) Purification and Characterization of a Catalase from Photosynthetic Bacterium *Rhodospirillum rubrum* S1 Grown under Anaerobic Conditions. *Journal of Microbiology* Vol 44: 185-191.
2. Yi Li and Herb E. Schellhorn. (2007) Rapid Kinetic Microassay for Catalase Activity. *Journal of Biomolecular Techniques* Vol. 18: 185-187.
3. Leo Pine et al. (1984) Determination of Catalase, Peroxidase, and Superoxide Dismutase Within the Genus *Legionella*. *Journal Clinical Microbiology* Vol 30: 421-429
4. Sigma Aldrich: <http://www.sigmaaldrich.com/technical-documents/protocols/biology/enzymatic-assay-of-catalase.html>

Use, Security, Handling and Disclaimer

Use	The product specified in this document has not been assessed for Human or Animal Consumption and is therefore Not for Human or Animal Consumption .
Security	The product specified in this document must be manipulated and used in a safe manner, in compliance with all applicable laws and regulations.
Handling	The product specified in this document must be manipulated by trained personnel, acquainted with laboratory security practices and regulations.