Journal of the Serbian Chemical Society
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J. Serb. Chem. Soc. 85 (5) S205–S211 (2020)
Supplementary material

SUPPLEMENTARY MATERIAL TO

A highly inducible *β*-galactosidase from *Enterobacter* sp.

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J. Serb. Chem. Soc. 85 (5) (2020) 609–622

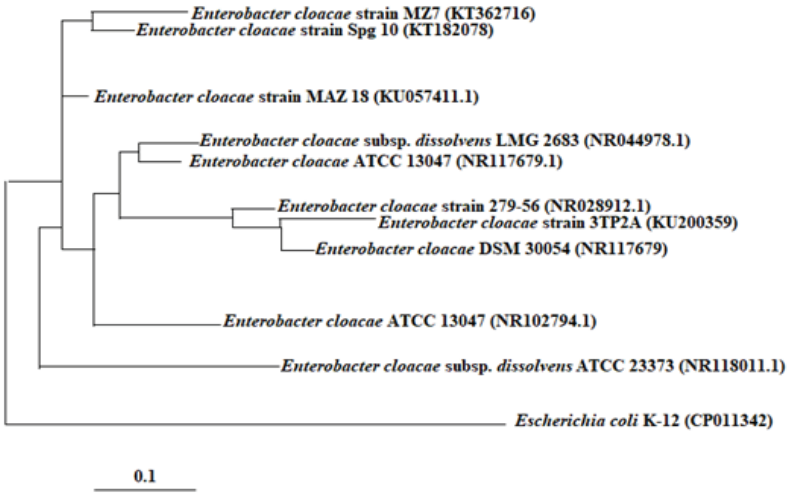

Fig. S-1. Phylogenetic analysis of 16S rRNA gene sequence similarities of *Enterobacter* sp. 3TP2A based on the BLAST result using the neighbor-joining method. Scale bar represents 0.1 substitutions per nucleotide position. The organisms and GeneBank accession numbers of analyzed sequences are given in parenthesis

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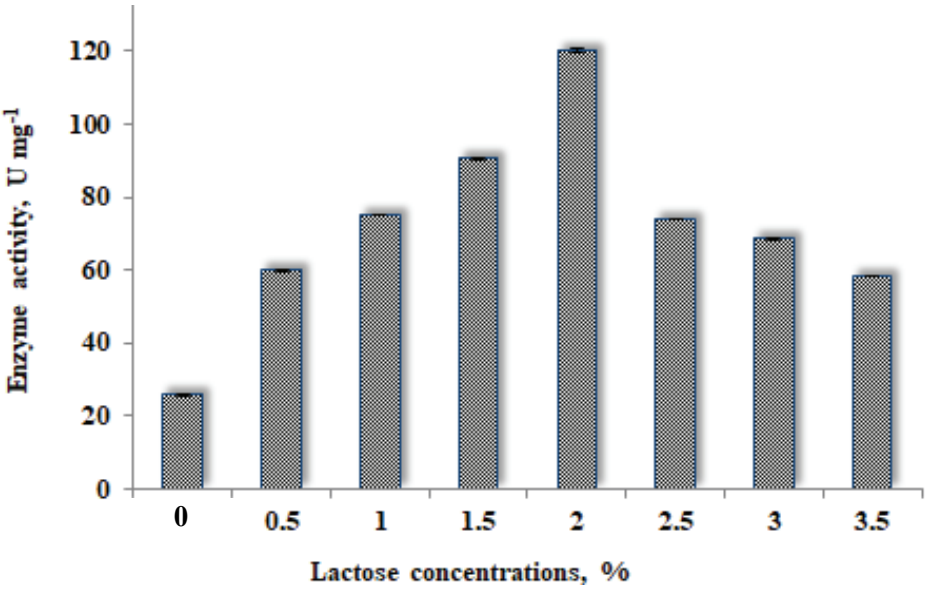

Fig. S-2. Effect of different lactose concentrations on the production of *β*-galactosidase in *Enterobacter* sp. 3TP2A.

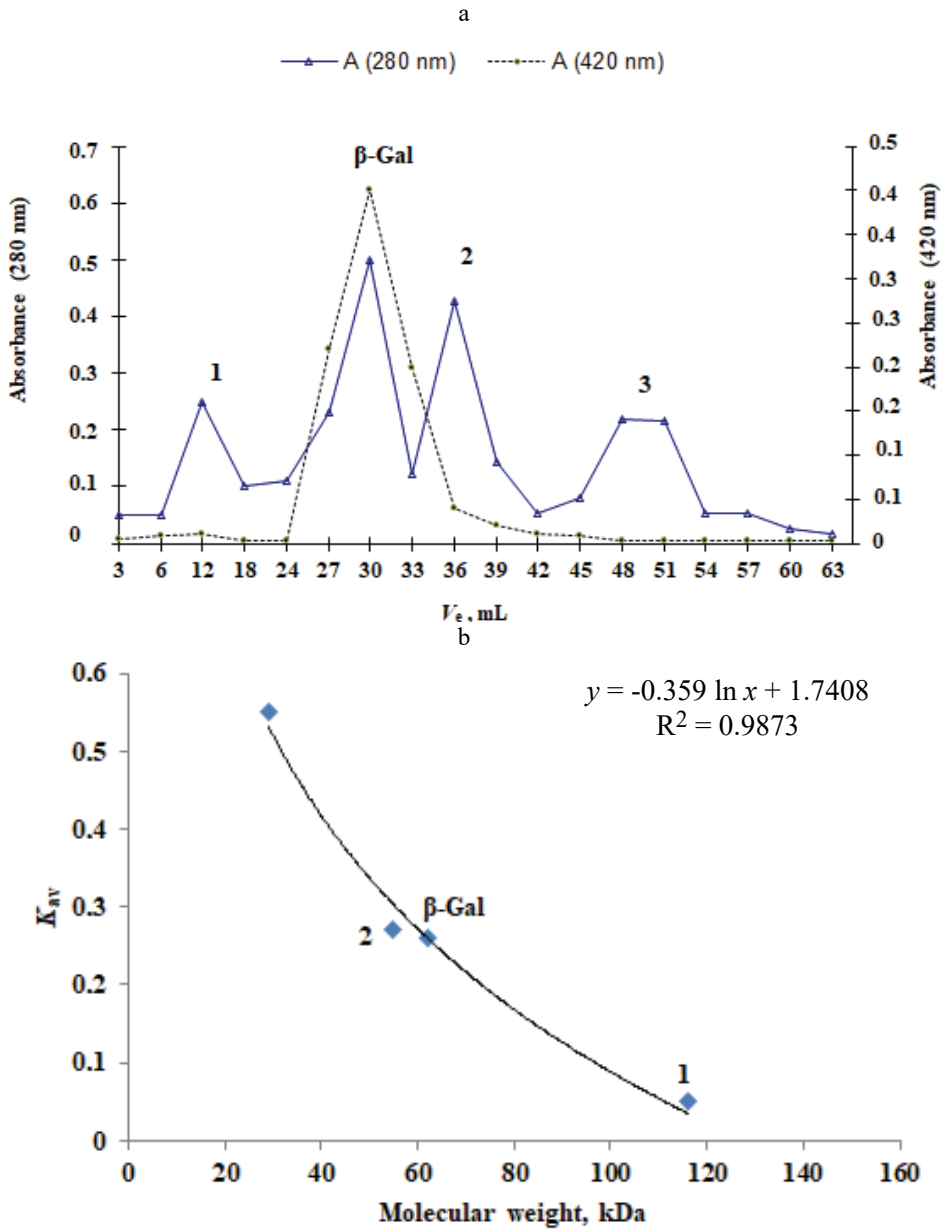

Fig. S-3. Molecular weight estimation by gel filtration chromatography. a) Elution profiles of gel filtration chromatography, b) calibration curve for molecular weight determination using gel filtration chromatography. Standard proteins; (1) *β*-galactosidase (MW: 116 kDa), (2) *α*-amylase (MW: 55 kDa), (3) carbonic anhydrase (MW: 29 kDa), (*β*-Gal) purified *β*-galactosidase from *Enterobacter* sp. 3TP2A.

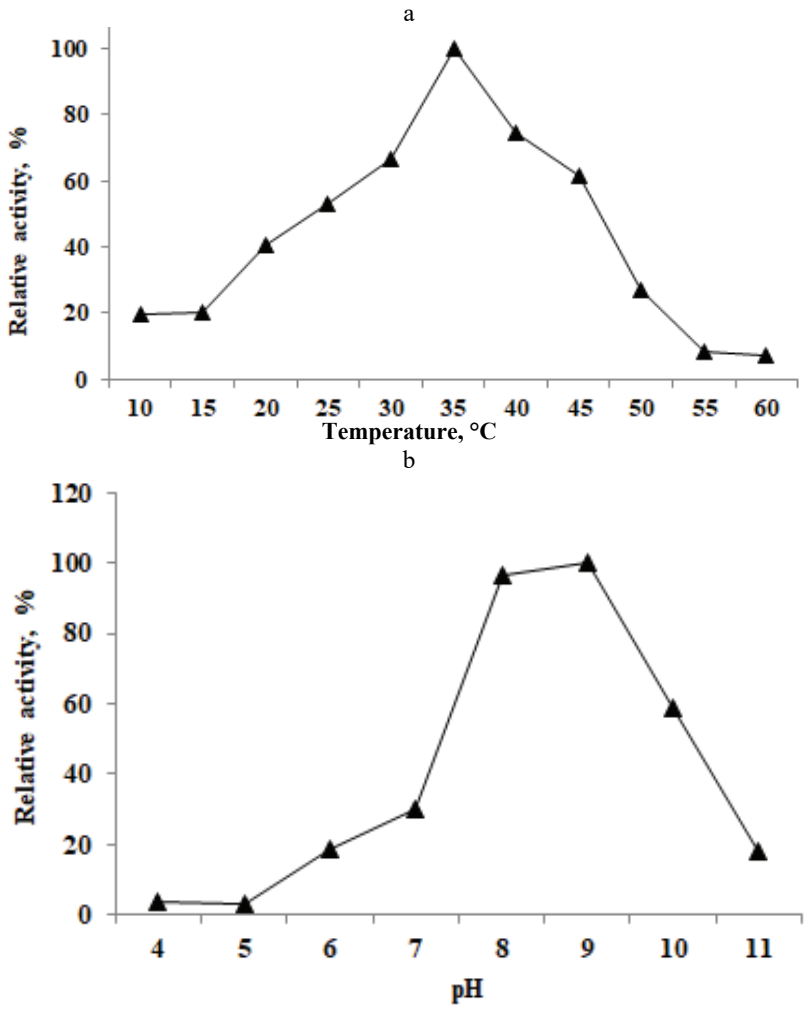

Fig. S-4. Effect of temperature (a) and pH (b) on *β*-galactosidase activity in *Enterobacter* sp. 3TP2A.

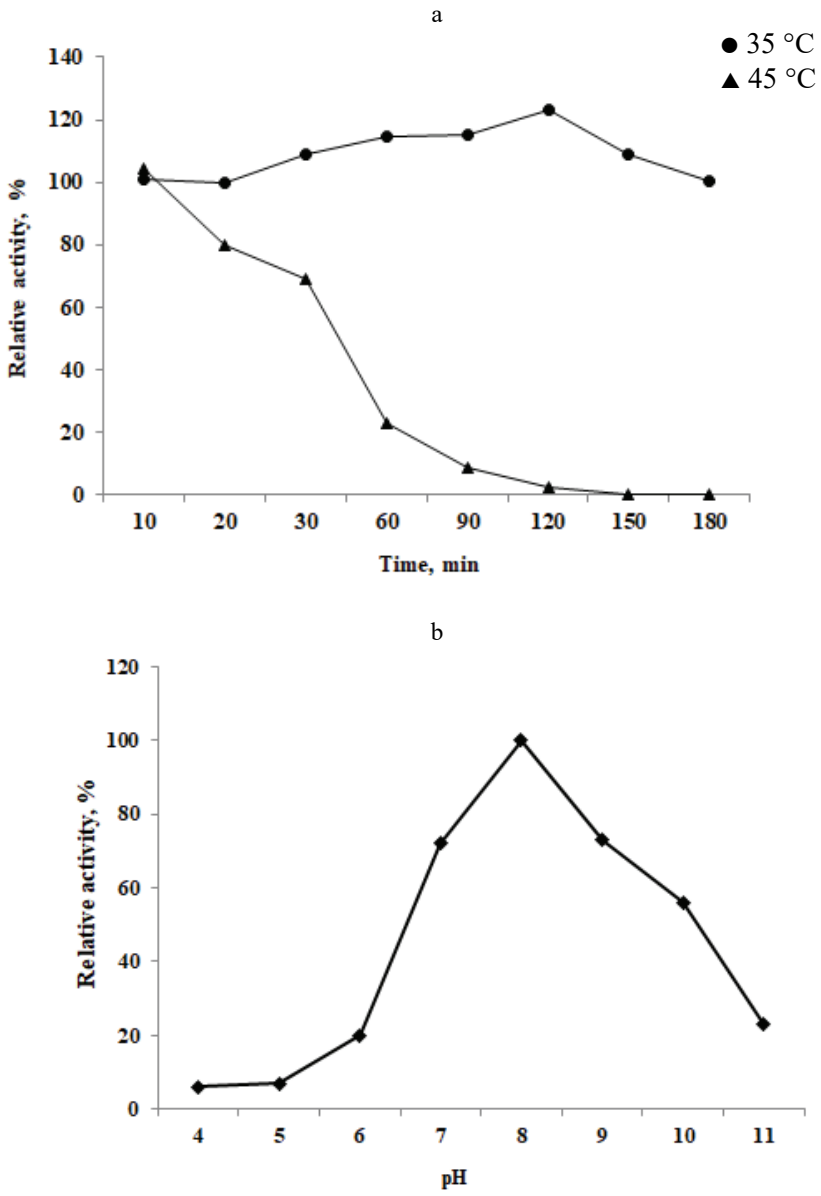

Fig. S-5. Effect of thermal (a) and pH (b) stability on purified *β*-galactosidase activity from *Enterobacter* sp. 3TP2A.

TABLE S-I. Effect of metal ions on the activity of purified *β*-galactosidase from *E. cloacae*; ND: not determined

Chemical	Percent activity retained, %				
	Concentration of metal ions, mM				
	1	2	5	10	20
Ca^{2+}	94±2.3	95±1.5	100±1.5	105±1.0	84±2.1
Cu^{2+}	4.1±0.1	0	0	0	0
Mg^{2+}	117±1.5	125±2.3	120±0.3	120±1.5	147±2.3
Zn^{2+}	68±1.8	73±0.1	92±2.9	103±2.7	ND
EDTA	32±0.9	29±0.4	27±2.4	25±0.3	24±0.8

TABLE S-II. Effect of inhibitors on the activity of purified *β*-galactosidase

Chemical	Percent activity retained, %			
	Concentration of inhibitors, mM			
	1	2	4	8
N-Ethylmaleimide	0	0	0	0
DTT	100±1.5	102±2.1	97±0.3	108±1.9
2-Mercaptoethanol	102±1.2	99±1.4	ND	114±1.5
Iodoacetamide	99±3.02	87±4.3	94±1.4	93±1.7
	Concentration of inhibitors, mM			
	0.2	0.4	1	2
PCMB	13.7±0.4	13.9±0.5	13.08±0.8	13.3±0.2

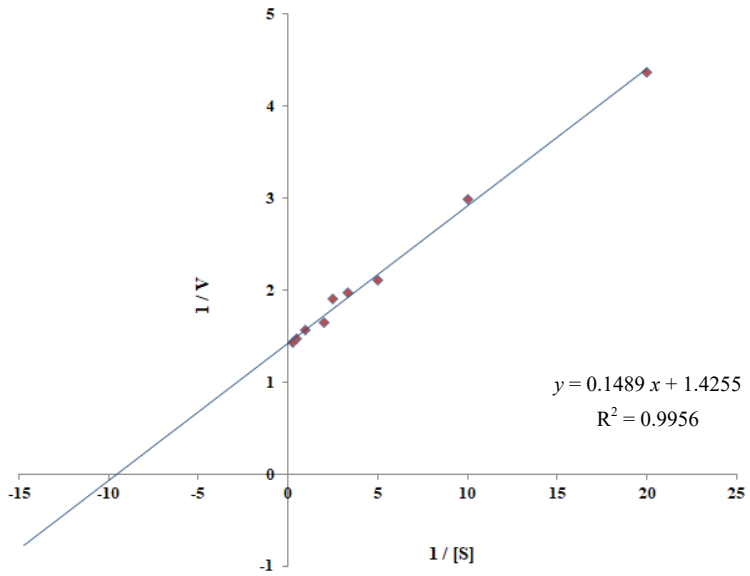

Fig. S-6. Linewever–Burk plot of the enzyme using various ONPG concentrations.

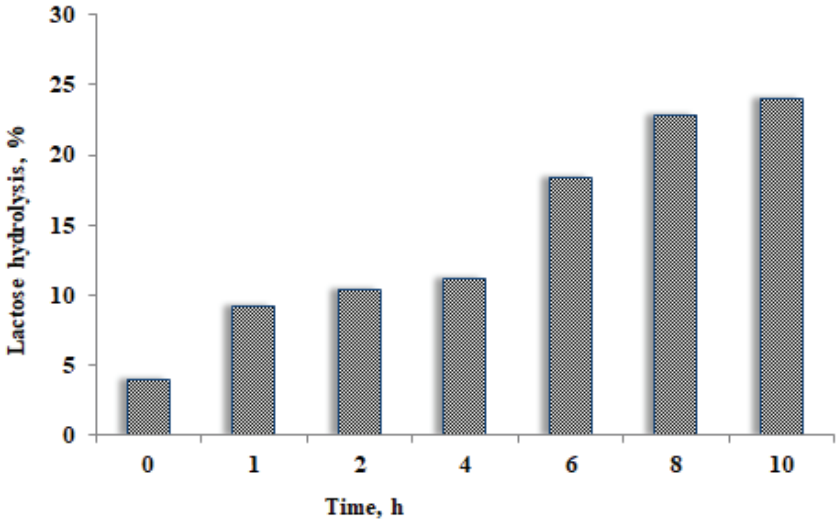

Fig. S-7. Lactose hydrolysis using purified *β*-galactosidase.