Electronic Supplementary Material (ESI) for Green Chemistry. This journal is © The Royal Society of Chemistry 2015

## Degradation and conversion of toxic compounds into useful bioplastics by *Cupriavidus* sp. CY-1: Relative expression of PhaC gene under phenol and nitrogen stress

## M. Venkateswar Reddy<sup>1</sup>, Yuka Yajima<sup>2</sup>, Yasuteru Mawatari<sup>3</sup>, Tamotsu Hoshino<sup>4,5</sup>, Young-Cheol Chang<sup>1</sup>\*

<sup>1</sup>Department of Applied Sciences, College of Environmental Technology,

Muroran Institute of Technology, 27-1 Mizumoto, Muroran, 050-8585, Japan,

<sup>2</sup>Graduate School of Medicine, Kyoto University, Yoshidakonoe-cho, Sakyo-ku, Kyoto-shi, Kyoto, 606-8501, Japan,

<sup>3</sup>Research Center for Environmentally Friendly Materials Engineering, Muroran

Institute of Technology, 27-1 Mizumoto-cho, Muroran, Hokkaido 050-8585, Japan,

<sup>4</sup>Biomass Refinery Research Center, National Institute of Advanced Industrial

Sciences and Technology (AIST), 3-11-32 Kagamiyama, Higashi-Hiroshima,

Hiroshima 739-0046, Japan,

<sup>5</sup>Bioproduction Research Institute, National Institute of Advanced Industrial Sciences

and Technology (AIST), 2-17-2-1Tsukisamu-Higashi, Toyohira-ku, Sapporo 062-8517,

Japan

E-mail: ychang@mmm.muroran-it.ac.jp

	HPLC conditions			
S. NO	Compound	Detector	Mobile phase	Retention
	name	(nm)	(% ratio)	time (min)
1	$4-BP^1$	277	Acetonitrile: water (8:2)	3
2	$4-s-BP^2$	277	Acetonitrile: water (8:2)	3
3	$4-t-BP^3$	277	Acetonitrile: water (8:2)	3
4	4-t-OP <sup>4</sup>	277	Acetonitrile: water (8:2)	5.3
5	4-NP <sup>5</sup>	277	Acetonitrile: water (8:2)	7.2
6	Phenol	277	Acetonitrile: water (8:2)	3
7	4-chlorophenol	280	Acetonitrile: 1% Ethylacetate (1:1)	3
8	Naphthalene	254	Acetonitrile: water (8:2)	2.1
9	Phenanthrene	254	Acetonitrile: water (8:2)	5.5

Table S1: Conditions maintained for analysis of various toxic compounds using HPLC

4-BP<sup>1</sup>: 4-butylphenol; 4-s-BP<sup>2</sup>: 4-secondary butylphenol; 4-t-BP<sup>3</sup>: 4-tertiary butylphenol; 4-t-OP<sup>3</sup>: 4-tertiary octylphenol; 4-NP<sup>5</sup>: 4-nonylphenol.



Figure S1: Growth curve of *Cupriavidus* sp. CY-1 with various alkylphenols. Bacteria were incubated at 100 mg/l concentration of different toxic compounds in MSM media without Tween-80 at 30°C. The optical density (OD at 600 nm) of each sample was measured at different time intervals.



Figure S2: Growth curve of *Cupriavidus* sp. CY-1 with phenol, 4-chlorophenol and sodium acetate. Bacteria were incubated at 100 mg/l concentration of substrate in MSM media without Tween-80 at 30°C. The optical density (OD at 600 nm) of each sample was measured at different time intervals.