Supporting Information for:

Biodegradation of Crystalline and Nonaqueous Phase Liquid (NAPL)-Dissolved *Arthrobacter* sp. ST11 with Cd^{2+} Resistance

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Physiochemical characteristics of strain ST11

Several physiological and biochemical characteristics of strain ST11 were identified and are listed in Table S1.

Table S1. Morphological, physiological, and biochemical properties of *Arthrobacter* sp. ST11.

Item	***Arthrobacter* sp. ST11**
Colony color	Light yellow
Colony surface	Wet smooth
Shape of cells	
Exponential phase	Rod
Stationary phase	cocci
Transparency	Non-transparent
Gram staining	+
Colonial morphology	regular
NaCl range (%, w/v)	0-10
H_2S production	+
Nitrate reduction	-
Urea	+
V-P test	-
Indole test	+
Hydrolysis of:	
Starch	-
Gelatin	+
Utilization of:	
D-glucose	+
D-galactose, inositol, ribose, L-rhamnose, L-asparagine, pimelic acid, glutaric acid, malonic acid, adipic acid, citric acid, propionic acid, histidine, arginine, formic acid	-

+, Positive; -, negative.

Photographs of colonies and cells of strain ST11

The strain ST11 colonies on the plate were in the form of round protrusions, light yellow and non-transparent, with a bright surface and smooth borders (Figure S1A). The strain was Gram-positive by Gram staining. Under the SEM, ST11 appears as rods when rapidly dividing (Figure S1B), and cocci when in stationary phase (Figure S1C).

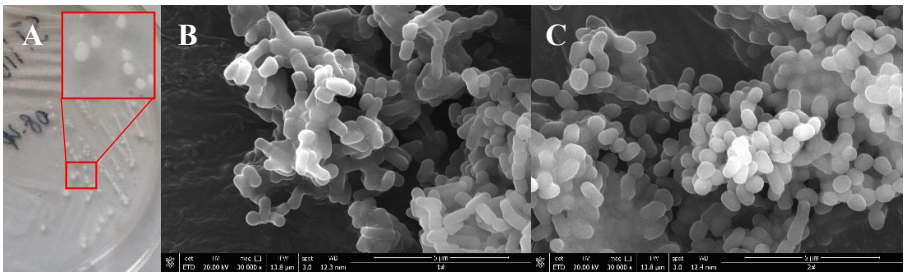
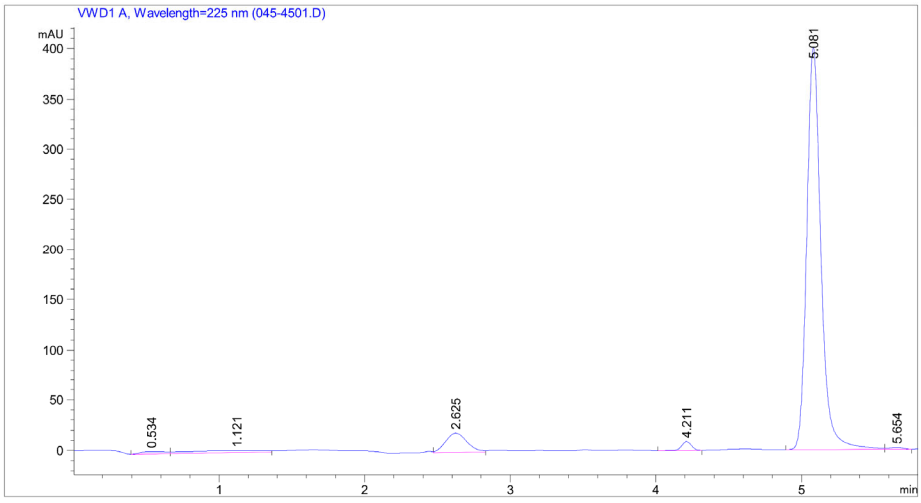


Figure S1. Photographs of colonies and cells of strain ST11: (**A**) photograph of ST11 colonies on LB solid media plate; (**B**) SEM photograph of ST11 cultured for 12 h; (**C**) SEM photograph of ST11 cultured for 36 h.

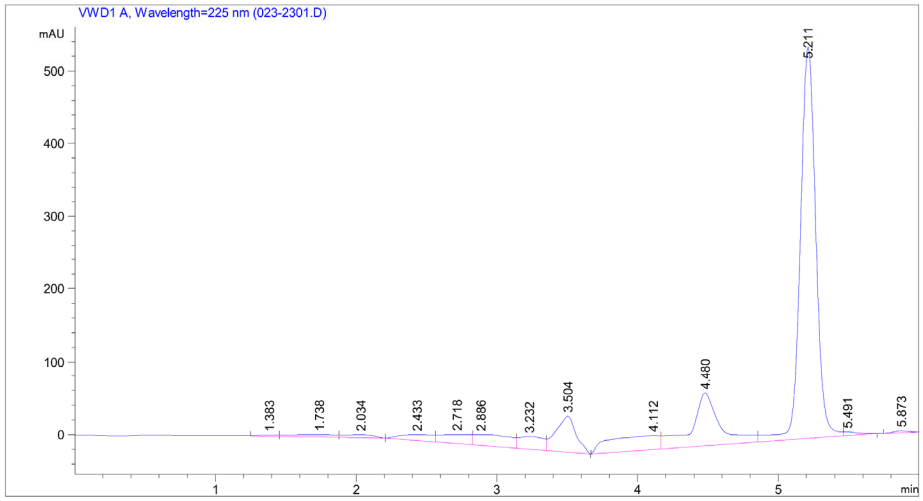
Analysis of metabolites

Here, we performed a simple LC-UV analysis at 225 nm to determine whether a new metabolite was generated after atrazine degradation (Figure S2). As shown in Figure S2a, the atrazine standard showed an obvious absorption peak at 5.081 min. When 0.23 mmol/L atrazine was added to 30 mL of MSM medium inoculated with ST11, extraction was performed immediately with an equal volume of ethyl acetate. Subsequently, the samples were detected by LC-UV at 225nm (Figure S2b). the extract of the culture solution also showed an obvious atrazine absorption peak (5.211 min). When atrazine is degraded by ST11, the culture solution is extracted with equal volume of ethyl acetate and then detected at 225 nm by LC-UV. As shown in Figure S2c, very small absorption peak at 5.251 min indicated that atrazine concentrationin the culture medium was very low (less than 0.01 mmol/L). A new absorption peak appeared at the retention time of 4.145 min. This absorption peak was not found in the atrazine standard (Figure S2a) and the culture medium before atrazine degraded (Figure S2b). This suggested that the new compound was a metabolite of degraded atrazine. The specific structure of this new metabolite needs further analysis by MS and NMR.

(a)



(b)



(c)

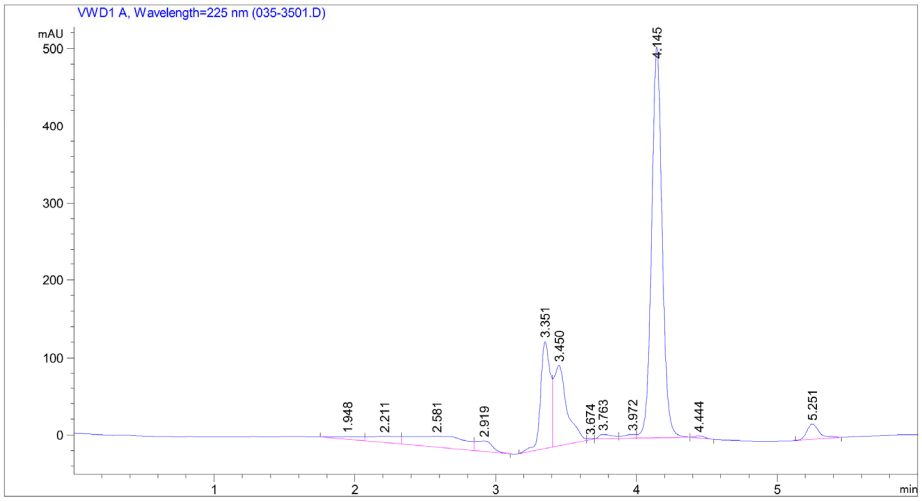


Figure S2. The LC-UV chromatograms at 225 nm of atrazine standard (**a**), sample extract before atrazine degradation (**b**), and sample extract after atrazine degradation (**c**). The retention time of 5.081, 5.211, and 5.251 min is the absorption peak of atrazine. The retention time of 4.145 min was the absorption peak of a new metabolite.