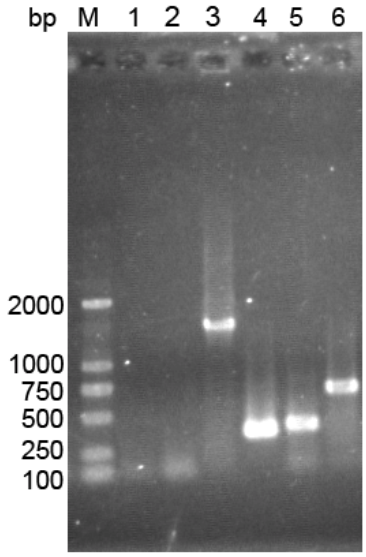

FIG. S1. RT-PCR analysis of *tcpXA*

M: molecular size markers; 1: negative control using total RNA as the template; 2: negative control without template; 3: 16S RNA as positive control; 4: an internal fragment of *tcpX*; 5: an internal fragment of *tcpA*; 6: a spanning region of *tcpX* and *tcpA*.

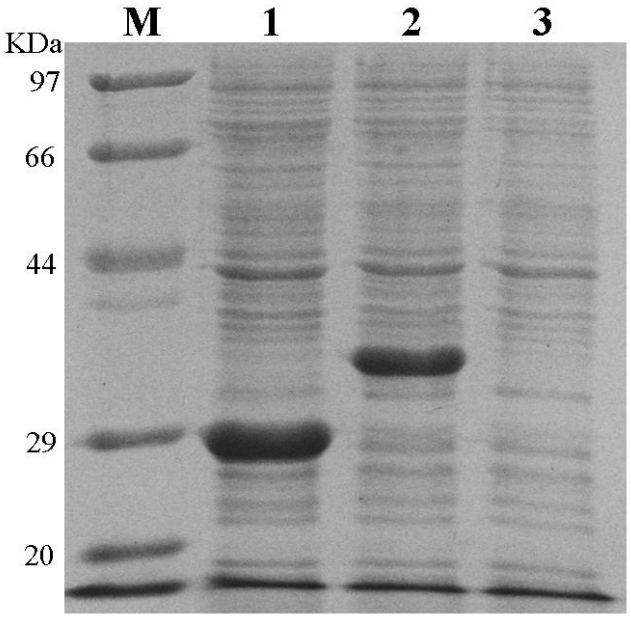

FIG. S2. SDS-PAGE analysis of DhpI and DhpJ expression in *E. coli*. M: marker; 1: cell extracts of BL21-pET-I; 2: cell extracts of BL21-pET-J; 3: cell extracts of BL21-pET29a.

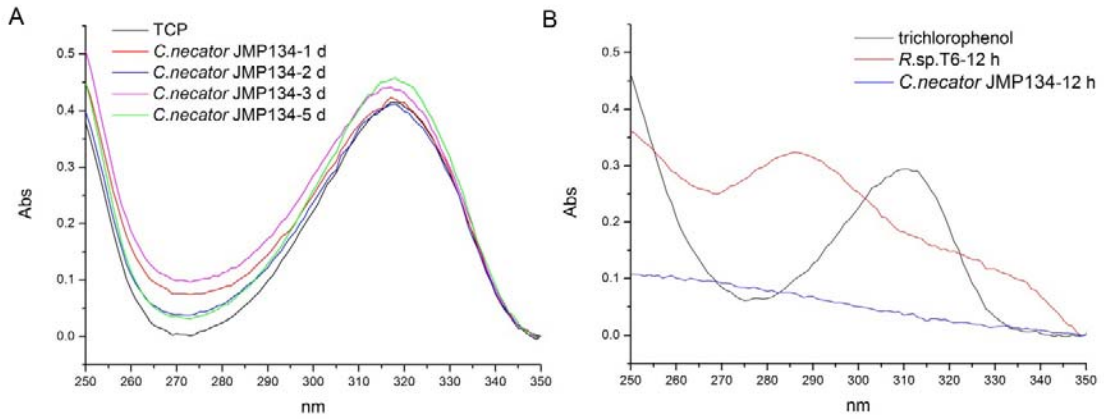

FIG. S3. (A) UV-visible spectral changes in TCP conversion using *C. necator* JMP134 (B) UV-visible spectral changes in trichlorophenol conversion using *R*.sp.T6 and *C. necator* JMP134.

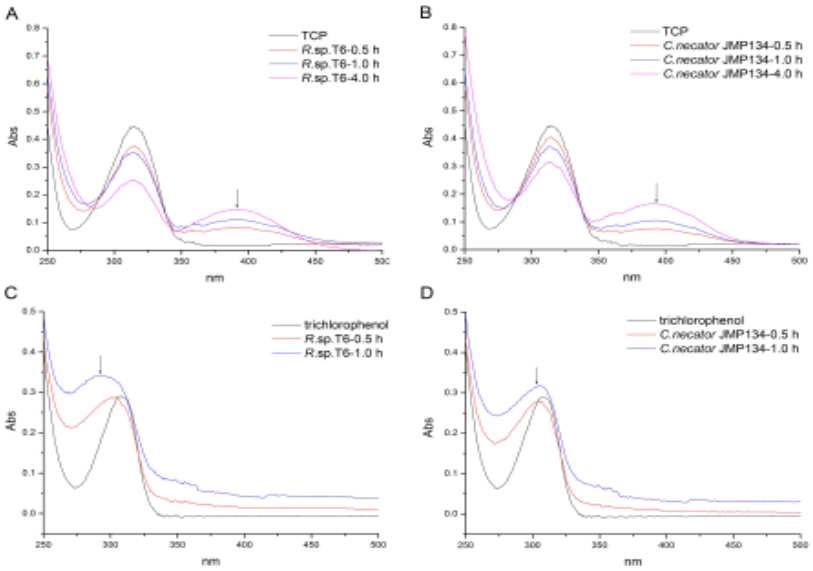

FIG. S4. UV-visible spectral changes in TCP and trichlorophenol conversion using the *E. coli* containing *tcpRXA* from *R*.sp.T6 (A and C) and *tcpRXA* from *C. necator* JMP134 (B and D). Arrow in A,B indicating the production of DHPD with a absorption peak at 390 nm. Arrow in C, D indicating the ring cleaving product of 2,4,6-trichlorophenol.

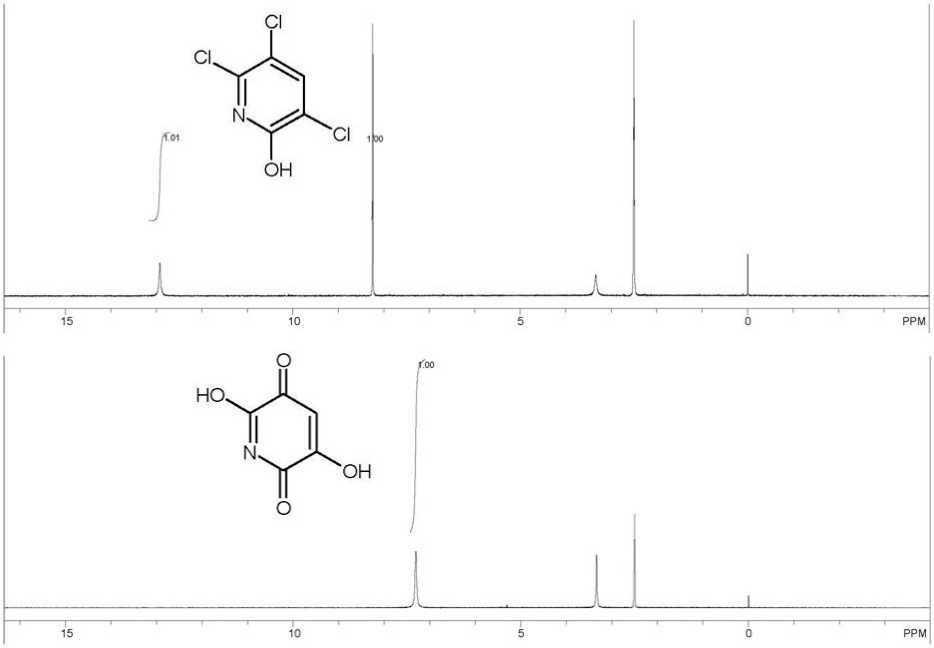

FIG. S5. The ^{1}H NMR spectra of 3,5,6-trichloro-2-pyridinol (TCP, top panel) and 3,6-dihydroxypyridine-2,5-dione (DHPD, lower panel).