

Supporting Information for

Biochemical characterization of a novel azo reductase named BVU5 from the bacterial flora DDMZ1: application for decolorization azo dyes

Junhao Cong^a, Xuehui Xie^{a,b*}, Yanbiao Liu^a, Yan Qin^a, Jiao Fan^a, Yingrong Fang^a, Na Liu^c,
Qingyun Zhang^d, Xinshan Song^{a,b}, Wolfgang Sand^{a,e}

^a College of Environmental Science and Engineering; State Environmental Protection Engineering Center for Pollution Treatment and Control in Textile Industry; Key Laboratory of Pollution Control and Emission Reduction Technology for Textile Industry, Donghua University, Shanghai 201620, China;

^b Shanghai Institute of Pollution Control and Ecological Security, Shanghai 200092, P.R. China;

^c School of Environment and Surveying Engineering, Suzhou University, Suzhou, Anhui 234000, China;

^d School of Chemical and Environmental Engineering, Anhui Polytechnic University, Wuhu, Anhui 241000, China;

^e Institute of Biosciences, Freiberg University of Mining and Technology, Freiberg, 09599, Germany.

Table of Content

Fig. S1A. Recombinant plasmid of MBP-BVU5.....	2
Fig. S1B. SDS-PAGE analysis of enzyme BVU5	3
Table S1 Decolorization effect of different dyes reacted only with coenzyme NADH	3
Fig. S2. The UV-Vis spectra of BVU5 decolorizing RB5.....	4
Fig. S3. The UV-Vis spectra change of coenzyme NADH	4
Fig. S4. The FTIR spectrum after enzyme decolorizing dye.....	5
Fig. S5. The FTIR spectrum of dye after coenzyme treatment.....	5

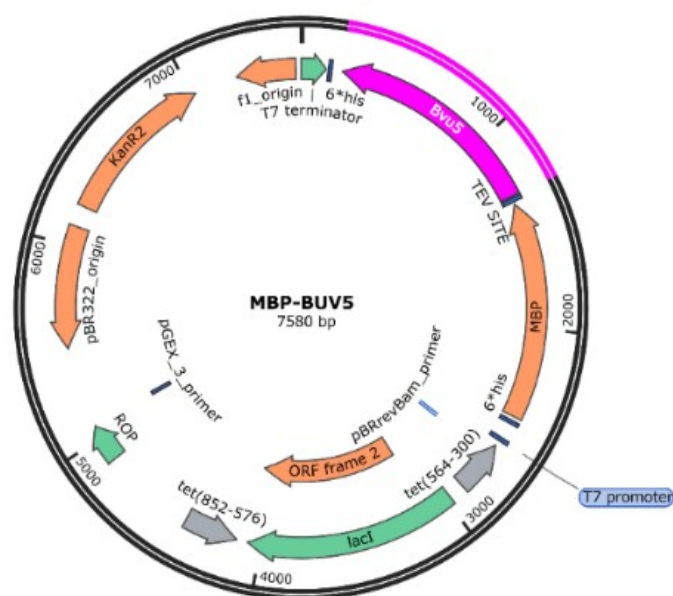


Fig.S1. (A) Recombinant plasmid of MBP-BVU5

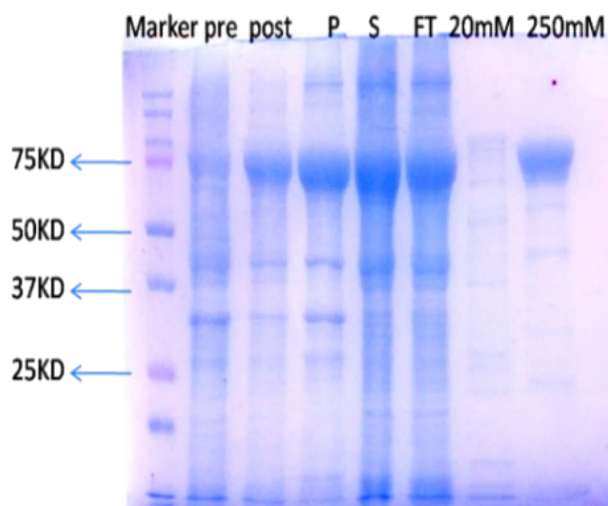


Fig.S1. (B) SDS-PAGE analysis of enzyme BVU5.

Pre, protein unexpressed; post, protein expression; P, precipitation; S, supernatant; FT, Ni-NTA flow-through solution; 20 mM and 250 mM imidazole eluent purified enzyme BVU5.

Table S1 Decolorization effect of different dyes reacted only with coenzyme NADH (dye concentration of 100 mg/L, incubation for 30 mins)

Dye types	Azo dyes							Anthraquinone dyes			triphenylmethane dyes			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Time														
0 h														
0.5 h														
1 h														

Note: Azo dyes: 1- Reactive Black 5, 2-Trypan Blue, 3-Chlorazol Black E, 4-Acid Orange 7, 5-Acid Black 1, 6- Acid Red 112, 7- α -Naphthol Orange. Anthraquinone dyes: 8-Acid Blue 40, 9-Reactive Blue 4, 10-Reactive Blue 19. Triphenylmethane dyes: 11-Malachite Green, 12-Brilliantgreen, 13-Fuchsin Basic, 14-Crystal Violet.

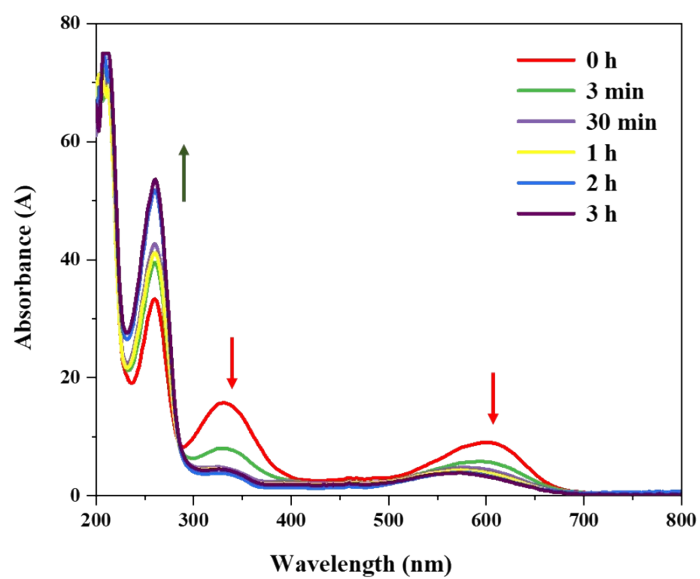


Fig.S2. The UV-Vis spectra of BVU5 decolorizing RB5

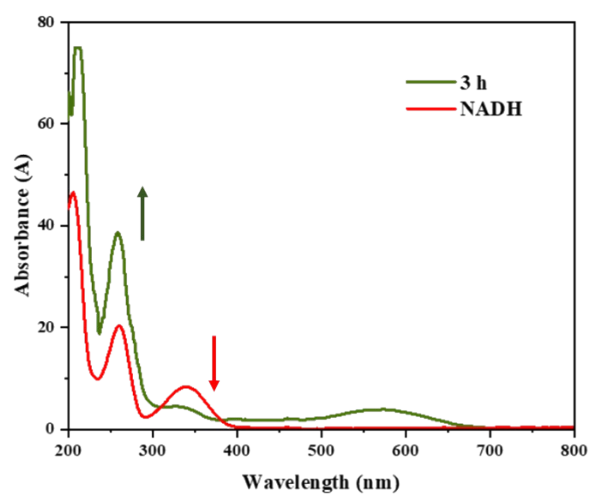


Fig.S3. The UV-Vis spectra change of coenzyme NADH

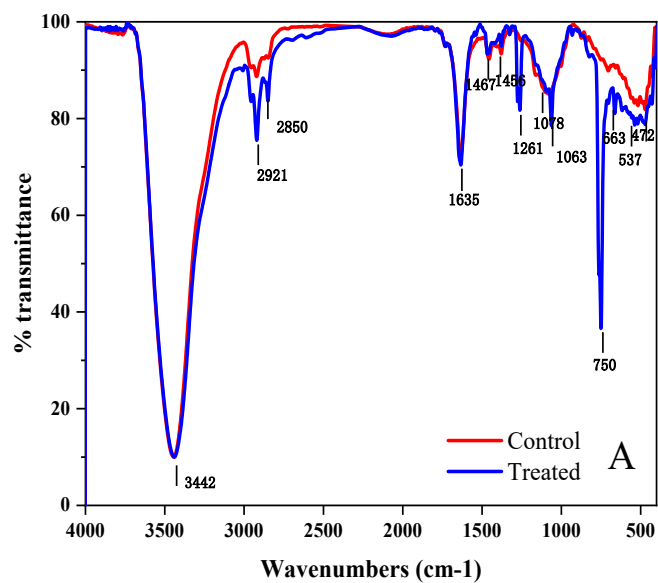


Fig.S4. The FTIR spectrum after enzyme decolorizing dye

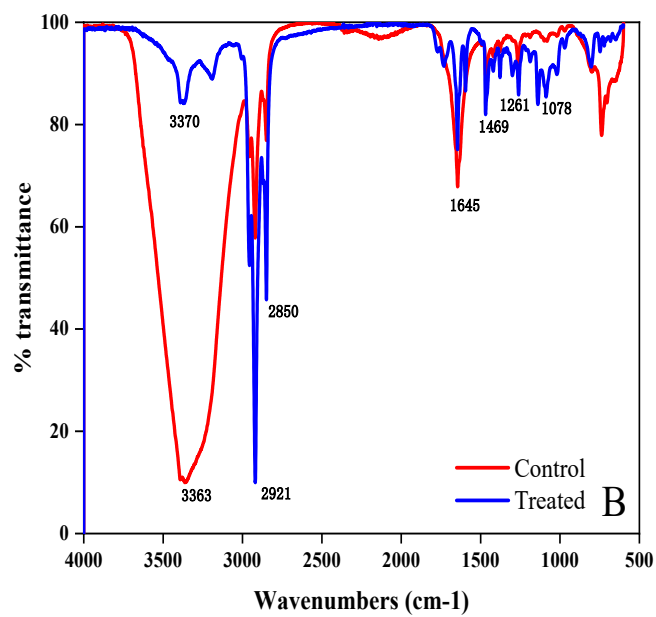


Fig.S5. The FTIR spectrum of dye after coenzyme treatment