catalysts

MDPI

Supplementary materials

Bienzymatic cascade combining a peroxygenase with an oxidase for the synthesis of aromatic aldehydes from benzyl alcohols

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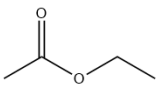
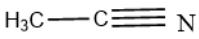
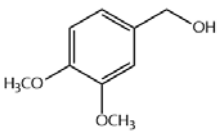
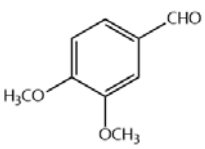
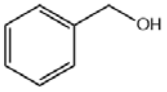
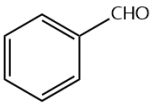
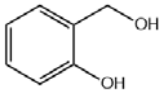
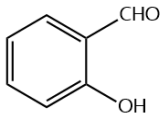
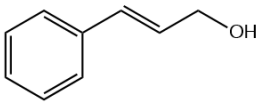
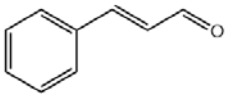
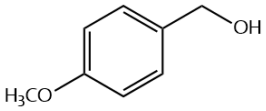
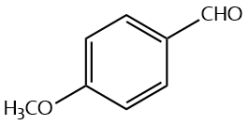
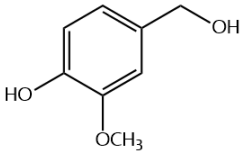
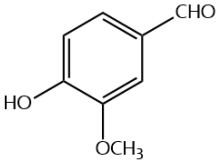
Table S1. Retention time of different aromatic primary alcohols / aromatic aldehydes

Substrate/ product	Structure of substrate/ product	TR (min)
Ethyl acetate (Extraction solvent)		2.2
N-dodecane (Internal standard)		4.5
Acetonitrile (Cosolvent)		2.0
Veratryl alcohol		21.7
Veratryl aldehyde		19.8
Benzyl alcohol		16.2

Benzaldehyde		8.4
2-hydroxybenzyl alcohol		11.7
Salicylaldehyde		8.9
Cinnamyl alcohol		19.3
Cinnamaldehyde		17.7
p-methoxybenzyl alcohol		19.3
Anisaldehyde		17.6
4-hydroxy-3-methoxybenzyl alcohol		23.4
Vanillin		20.1

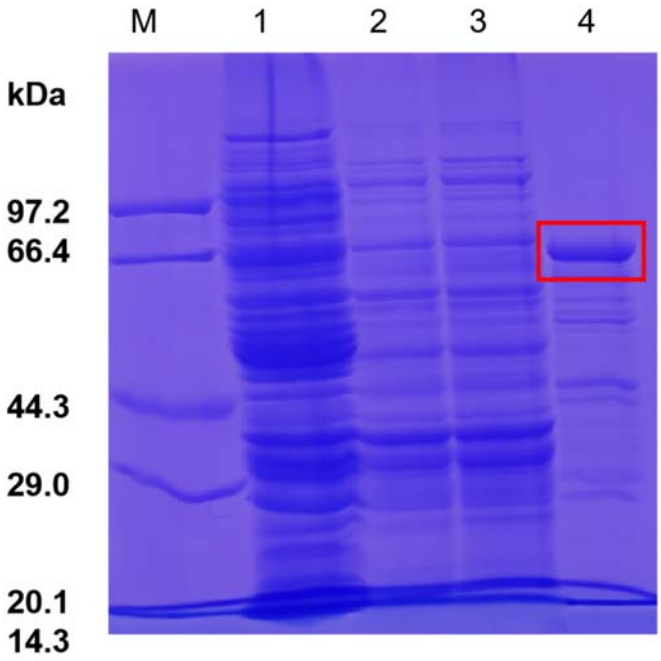


Figure S1. SDS-PAGE of *Pe*AAOx (M: Marker; 1: total bacteria; 2, 3: supernatant; 4: renaturing enzyme solution)

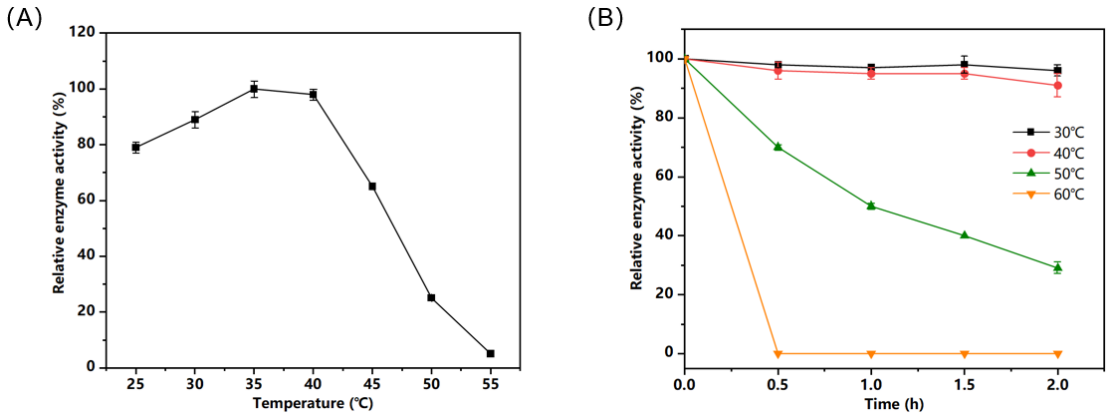


Figure S2. Effect of temperature on *Pe*AAOx enzyme activity (A) and tolerance of *Pe*AAOx to temperature (B)

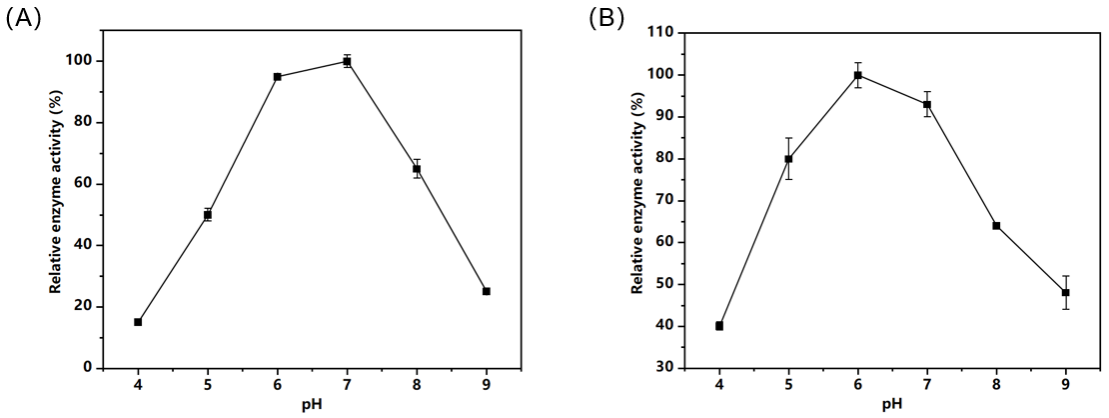


Figure S3. Effect of pH on *Pe*AAOx enzyme activity (A) and tolerance of *Pe*AAOx to pH (B)

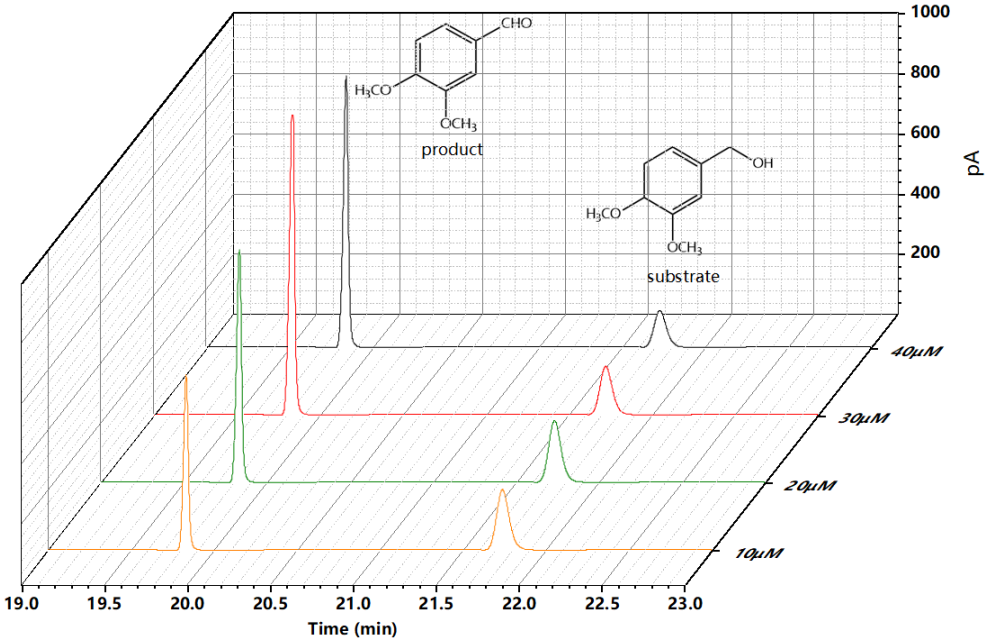


Figure S4. Gas chromatograms of different *Pe*AAOx enzyme dosages used to catalyze the reaction of aromatic primary alcohols for 24 h. (Reaction conditions: [*Pe*AAOx] = 10, 20, 30 and 40 μM, [*Aae*-UPO] = 2 μM, [veratryl alcohol] = 50 mM (pre-dissolved in acetonitrile), 30°C, pH 7, 24h and 500 rpm)

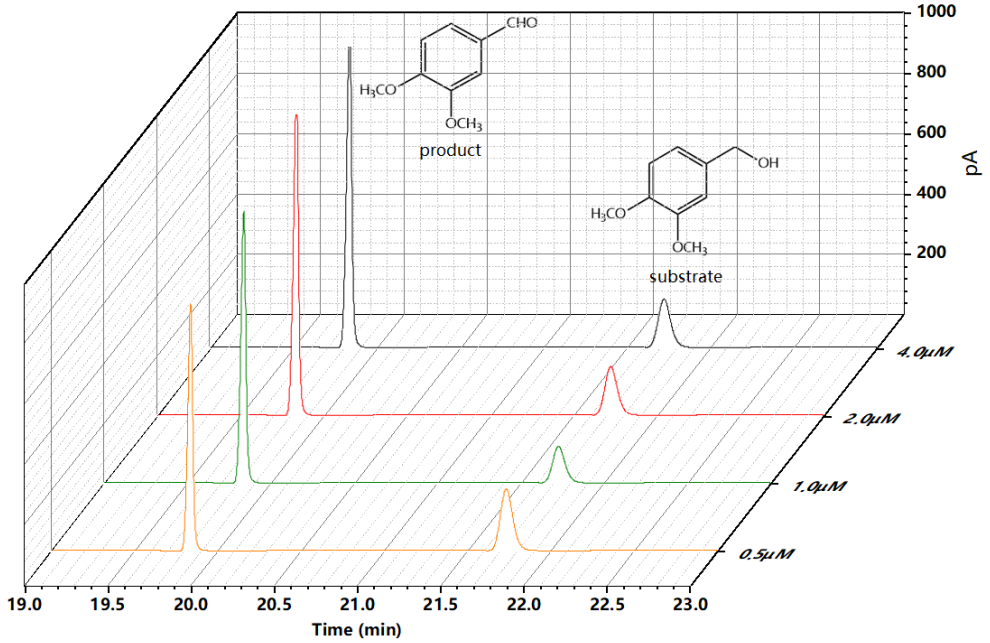


Figure S5. Gas chromatograms of different AaeUPO enzyme dosages used to catalyze the reaction of aromatic primary alcohols for 24 h. (Reaction conditions: [*Pe*AAOx] = 30 μM, [*Aae*UPO] = 0.5, 1.0, 2.0 and 4.0 μM, [veratryl alcohol] = 50 mM (pre-dissolved in acetonitrile), 30°C, pH 7, 24h and 500 rpm)

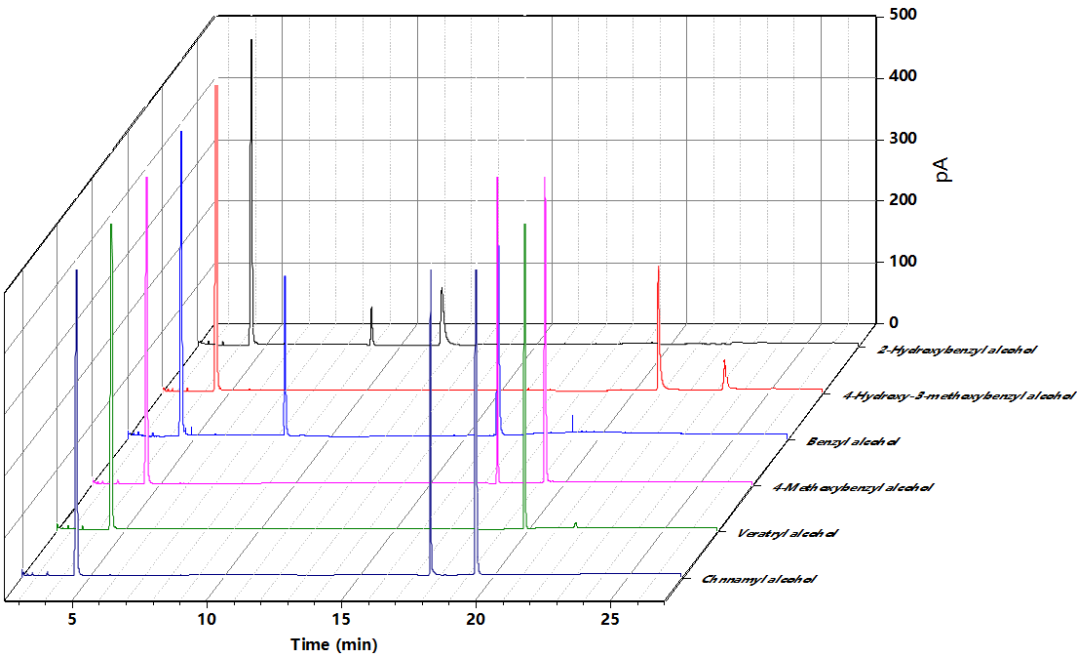


Figure S6. The gas chromatogram of the substrate expansion study (the specific peak time is shown in Table S1). (Reaction conditions: [*Pe*AAOx] = 30 μM, [*Aae*UPO] = 2 μM, [substrate] = 50 mM (pre-dissolved in acetonitrile)，40°C，pH 7，500 rpm，24 h)