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Electronic Supplementary Information

A new route for the synthesis of methacrylic acid from 2-methyl-1,3-propanediol by integrating biotransformation and catalytic dehydration

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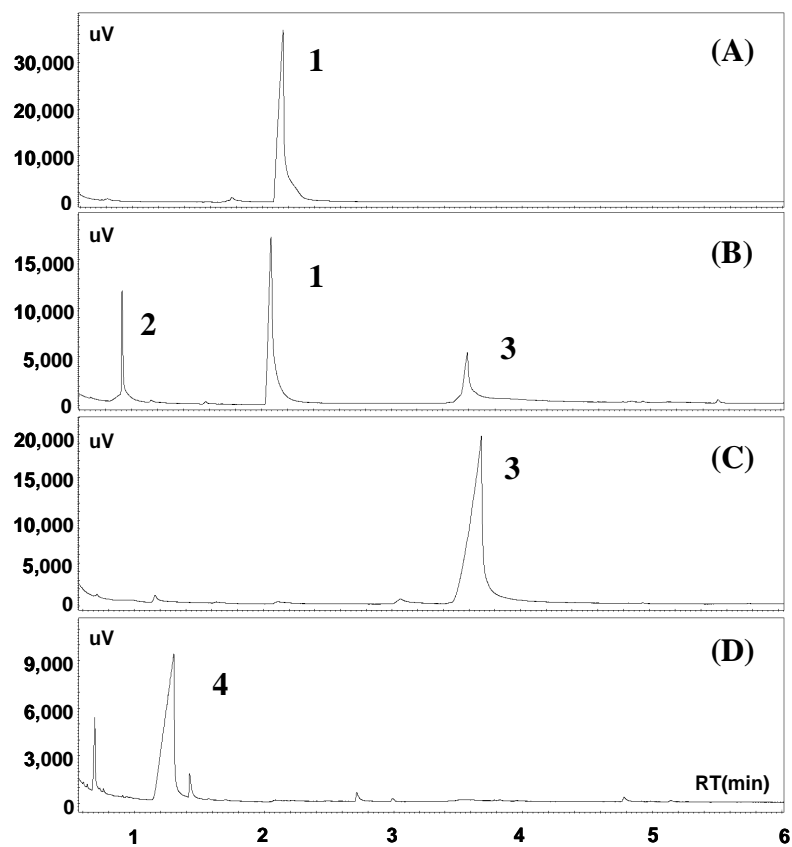
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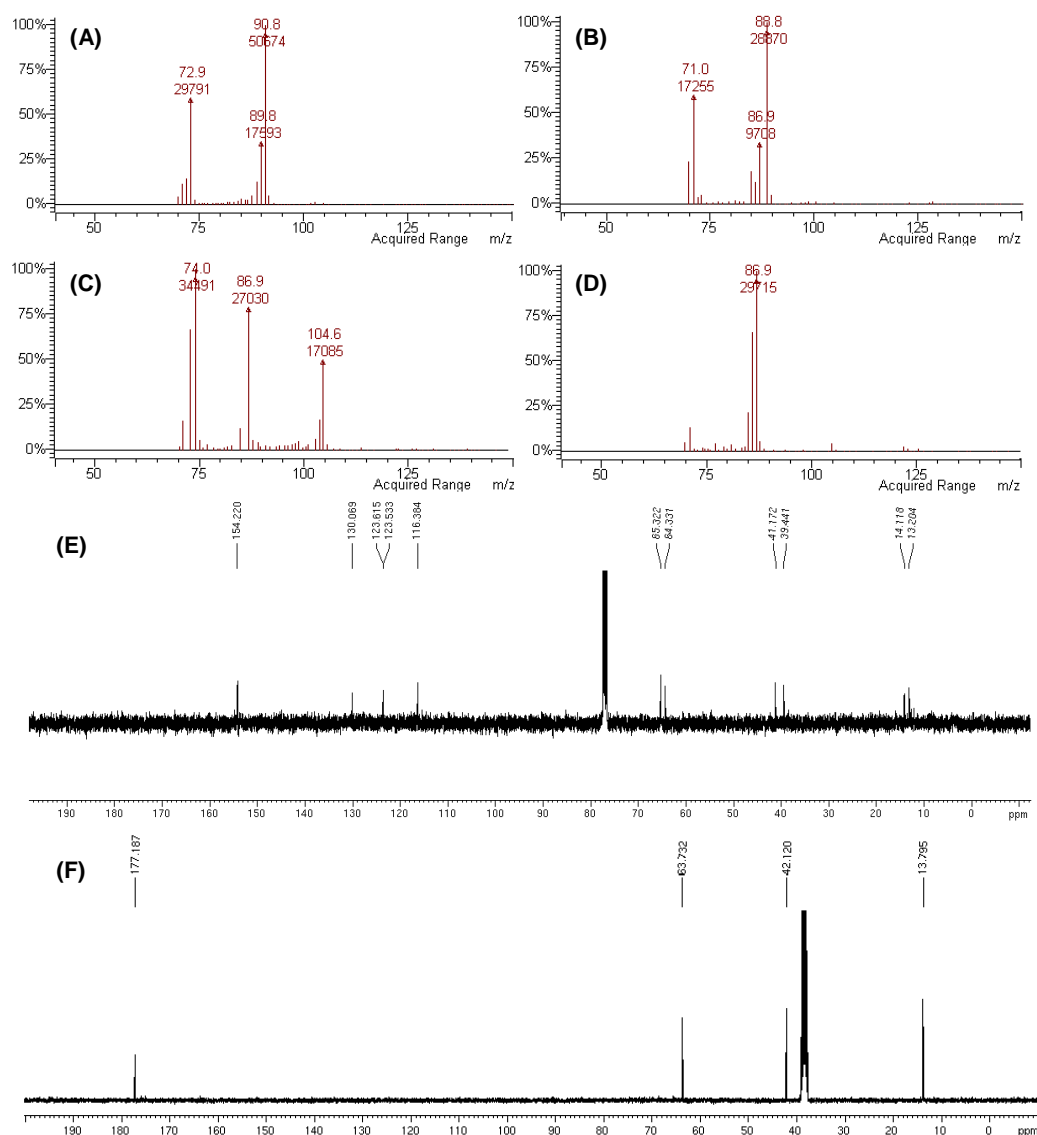
34 Fig. S1. Gas chromatograms of (A) 2-methyl-1,3-propanediol (1), (B) reaction mixture
35 containing 3-hydroxy-2-methylpropanal (2), 2-methyl-1,3-propanediol and 3-hydroxy-2-
36 methylpropionic acid (3), (C) 3-hydroxy-2-methylpropionic acid, and (D) methacrylic
37 acid (4). Experimental details are provided in the text.

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42 Fig. S2. GC-MS and NMR data of reaction components. Mass spectrum of 2-methyl-1,3-
43 propandiol (A, cal. MW 90.12), 3-hydroxy-2-methylpropenal (B, cal. MW 88.10), 3-
44 hydroxy-2-methylpropionic acid (C, cal. MW 104.10), and methacrylic acid (D, cal. MW
45 86.09). ¹³C-NMR spectrum; (E) derivatized 3-hydroxy-2-methylpropanal (CDCl₃), (F) 3-
46 hydroxy-2-methylpropionic acid and its ¹H-NMR (DMSO-d₆): 0.98 (d, 3H), 2.38(m, 1H),
47 3.39(m, 1H), 3.50(m, 1H).

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