

Supporting Information:

Detailed Procedure for Esterification

(i) Esterification of *p*-hydroxybenzaldehyde (6) to methyl *p*-hydroxybenzoate

To an ice-cooled and stirred solution of *p*-hydroxybenzaldehyde, 122 mg (1 mmol) in methanol (5 mL) was added 0.05 mL (0.62 mmol) of 70% HClO₄ and stirred for about 10 min. Separately, V₂O₅, 7.24 mg (0.04 mmol) was added to 0.45 mL (4 mmol) of 30% H₂O₂, and left stirred in an ice-cooled temperature until all the V₂O₅ dissolves and the solution becomes reddish brown (approx. 10 min). This is then added to the above aldehyde solution over a period of 40 min. The resulting solution was stirred at ~5°C until TLC and GC detected no starting material (2.5 hrs). The solvent was removed *in vacuo* and the residue redissolved in ethylacetate (20 mL). The organic layer was first washed with 5% sodium bicarbonate solution (2 x 5 mL) then with water (2 x 5 mL) and finally dried over anhydrous Na₂SO₄. The solvent was removed *in vacuo* and the residue was purified by column chromatography (silica gel, hexane : ethylacetate = 16:1) to afford the product, methyl *p*-hydroxybenzoate. The isolated yield was 147 mg (97 %). IR, ¹H NMR and ¹³C-NMR spectral data are in agreement with the spectral data published.^{1,2}

M.P. 129 °C (*Lit*³ 130 °C).

IR (KBr) cm⁻¹: 3300, 2918, 2849, 1680, 1605, 1511, 1432, 1285, 775.

¹H NMR (CDCl₃) δ: 7.98 (d, 2H, - ArH), 6.85 (d, 2H, - ArH), 5.50 (brs, 1H, -OH, D₂O exchangeable), 3.84 (s, 3H, -OCH₃).

¹³C-NMR, (CDCl₃) δ: 50.17, 115.28 (2C), 120.7, 131.4 (2C), 162, 166.

1. *The Aldrich Library of FT-IR Spectra*; Sigma-Aldrich Co.: 1997; Ed. II, Vol. II, pp. 2844.
2. *The Aldrich Library of ¹³C and ¹H FT-NMR Spectra*; Aldrich Chemical Company, Inc.: 1993, Ed. I, Vol. II, pp.1253.
3. Buckingham, J.; Macdonald, F. *Dictionary of Organic Compounds*; Chapman and Hall: London, 1996; Vol. 4, pp. 3583.

(ii) Esterification of *p*-nitrobenzaldehyde (11) to methyl *p*-nitrobenzoate

To an ice-cooled and stirred solution of *p*-nitrobenzaldehyde, 151 mg (1 mmol) in methanol (5 mL) was added 0.05 mL (0.62 mmol) of 70% HClO₄ and stirred for about 10 min. Separately, V₂O₅, 7.24 mg (0.04 mmol) was added to 0.45 mL (4 mmol) of 30% H₂O₂, and left stirred in an ice-cooled temperature until all the V₂O₅ dissolves and the solution becomes reddish brown (approx. 10 min). This is then added to the above aldehyde solution over a period of 40 min. The resulting solution was refluxed in a water bath for 0.5 hrs. The solvent was removed *in vacuo* and the residue redissolved in ethylacetate (20 mL). The organic layer was first washed with 5% sodium bicarbonate solution (2 x 5 mL) then with water (2 x 5 mL) and finally dried over anhydrous Na₂SO₄. The solvent was removed *in vacuo* and the residue was purified by column chromatography (silica gel, hexane : ethylacetate = 24:1) to afford the product, methyl *p*-nitrobenzoate. The isolated yield was 0.174 g (96%). IR, ¹H NMR and ¹³C-NMR spectral data are in agreement with the spectral data published.^{4,5}

M.P. 95 °C (Lit⁶ 96 °C).

IR (KBr) cm⁻¹: 2919, 2850, 1712, 1523, 1443, 1351, 1381, 1102, 727.

¹H NMR (CDCl₃) δ : 8.25 (dd, 4H, - ArH), 3.98 (s, 3H, -OCH₃).

¹³C-NMR (CDCl₃) δ : 52.87; 123.95 (2C), 131.31 (2C), 135.93, 152.47, 165.09.

4. *The Aldrich Library of FT-IR Spectra*; Sigma-Aldrich Co.: 1997; Ed. II, Vol. II, pp. 2862.
5. *The Aldrich Library of ¹³C and ¹H FT-NMR Spectra*; Aldrich Chemical Company, Inc.: 1993, Ed. I, Vol. II, pp.1266.
6. Buckingham, J.; Macdonald, F. *Dictionary of Organic Compounds*; Chapman and Hall: London, 1996; Vol. 5, pp. 4758.