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Supporting Information for:

Organocatalytic Decarboxylative Doebner-Knoevenagel Reactions Between Arylaldehydes and Mono-Ethyl Malonate Mediated by a Bifunctional Polymeric Catalyst

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General Experimental Procedures

All reagents were obtained from the Acros, Aldrich, or Lancaster chemical companies and were used as received. All reactions were monitored by TLC analysis using GF254 silica gel coated plates. Visualization was by shortwave (254nm) and longwave (365nm) ultraviolet light, or by staining with phosphomolybdic acid in ethanol or with potassium permanganate. Column chromatography was carried out using silica gel (300-400 mesh) at increased pressure. $^1$H- and $^{13}$C-NMR spectra were recorded in CDCl$_3$ on a Bruker DRX-300 or Bruker BRX-400 spectrometer operating at 300/400 MHz for $^1$H analyses and at 75/100 MHz for $^{13}$C analyses. Chemical shift data is expressed in ppm with reference to TMS. High-resolution EI-MS data was recorded on a Finnigan MAT 96 mass spectrometer. Elemental analysis was performed at the Shanghai Institute of Organic Chemistry in Shanghai, China.

Synthesis of Polymer Catalysts 3-5

![Chemical Structure](image)

1-Boc-4-(4-vinylbenzyl)piperazine (2). Anhydrous piperazine (15.14 g, 180 mmol) was dissolved in dry THF (100 mL). The solution was heated to reflux and
then 4-vinylbenzylchloride (4.58 g, 30 mmol) was added dropwise. The reaction mixture was then refluxed for a further 3 hr. After cooling the reaction mixture was filtered and the solid material was washed with EtOAc (15 mL). The filtrate was concentrated by in vacuo and then basified with an aqueous KOH solution (pH>12). The aqueous layer was extracted with CH$_2$Cl$_2$ (3 x 20 mL) and EtOAc (2 x 20 mL). The combined organic layers were washed with brine, dried over MgSO$_4$ and concentrated in vacuo to afford crude 4-vinylbenzylpiperazine as a yellow liquid (90% purity), which was used directly without further purification.

To the crude 4-vinylbenzylpiperazine (27 mmol) was added Boc$_2$O (5.89 g, 27 mmol) and I$_2$ (0.68 g, 2.7 mmol). The neat reaction mixture was stirred at room temperature for 1 h. Diethyl ether (50 mL) was then added and the organic layer was washed sequentially with 5% aqueous Na$_2$S$_2$O$_3$ solution (50 mL) and saturated aqueous NaHCO$_3$ (50 mL), dried over MgSO$_4$, filtered and concentrated in vacuo. The resulting crude product was purified by column chromatography (15% EtOAc/hexane) to afford 2 as a white solid (7.75 g, 95%). $^1$H-NMR (300 MHz, CDCl$_3$) $\delta$ ppm 7.36 (d, $J$ = 8.1 Hz, 2H), 7.26 (d, $J$ = 8.1 Hz, 2H), 5.73 (d, $J$ = 17.6 Hz, 1H), 5.22 (d, $J$ = 17.6 Hz, 1H), 3.49 (s, 2H), 3.24 (t, $J$ = 5 Hz, 4H), 2.37 (t, $J$ = 5 Hz, 4H), 1.45 (s, 9 H); $^{13}$C-NMR (75 MHz, CDCl$_3$) $\delta$ ppm 154.8, 137.5, 136.5, 129.3, 126.1, 113.6, 79.5, 62.7, 52.8, 43.5, 28.4. HRMS for C$_{18}$H$_{26}$N$_2$O$_2$: calcd 302.1994, found 302.1989.
Poly{styrene-co-[4-(N-methyl-N-vinylbenzyl-amino)pyridine-co-[1-phenyl-3-(4-vinylbenzyl)piperazine]}} (3). To a solution of styrene (5.8 mL, 50 mmol), 1 (1.12 g, 5.0 mmol) and 2 (1.51 g, 5.0 mmol) in toluene (40 mL) was added AIBN (0.098 g, 0.6 mmol). The mixture was purged with N₂ for 30 min and then the solution was stirred at 80-85 °C for 24 h. Then the solution was cooled and concentrated in vacuo. The resulting residue was dissolved in THF (5 mL) and this solution was added dropwise to vigorously stirred cold MeOH (400 mL). The precipitated polymer was filtered, dried, dissolved in CH₂Cl₂ (12 mL), treated with CF₃COOH (24 mL) and stirred at room temperature for 5 h. The volatiles were then removed in vacuo, and the residue was dissolved in THF (5 mL) and precipitated from cold MeOH (400 mL). The precipitated polymer was filtered and dried in vacuo to afford 3 as a pale yellow powder (3.22 g, 44%). ¹H-NMR (400 MHz, CDCl₃) δ ppm 8.21 (br, 2H), 7.05-6.50 (m, 61H), 4.41 (br, 2H), 3.38 (br, 2H), 2.29 (m, 7H), 1.83 (br, 3H), 1.62-0.88 (m, 38H). ¹H-NMR analysis indicated that the ratio of styrene:1:2 incorporated into 3
was 10.1:1:1.1, which corresponds to a loading level of 0.67 mmol/g for DMAP and 0.74 mmol/g for piperazine. Elemental analysis: N: 4.13%, which corresponds to an overall loading level of 1.48 mmol/g, and is similar to what was determined by $^1$H-NMR analysis.

**Poly{styrene-co-[4-(N-methyl-N-vinylbenzyl-amino)pyridine]} (4).** To a solution of styrene (0.9 mL, 8 mmol) and 1 (0.224 g, 1.0 mmol) in chlorobenzene (5.7 mL) was added AIBN (0.015 g, 0.09 mmol). The mixture was purged with N$_2$ for 30 min and then the solution was stirred at 80-85 °C for 24 h. Then the solution was cooled and concentrated in vacuo. The resulting residue was dissolved in THF (3 mL) and this solution was added dropwise to vigorously stirred cold MeOH (300 mL). The precipitated polymer was filtered and dried to afford 4 as a pale yellow powder (0.47 g, 45%). $^1$H-NMR (300 MHz, CDCl$_3$) δ ppm 8.21 (bs, 2H), 7.25-6.49 (m, 53H), 4.4 (bs, 2H), 2.94 (bs, 3H), 2.02-0.90 (m, 41H). $^1$H-NMR analysis indicated that the ratio of styrene:1 incorporated into 4 was 9.3:1, which corresponds to a loading level of 0.84 mmol/g for DMAP.

**Poly{styrene-co-[1-phenyl-3-(4-vinylbenzyl)piperazine]} (5).** To a solution of styrene (1.5 mL, 13.2 mmol) and 2 (0.5 g, 1.65 mmol) in toluene (9.5 mL) was added AIBN (0.024 g, 0.0149 mmol). The mixture was purged with N$_2$ for 30 min and then the solution was stirred at 80-85 °C for 24 h. Then the solution was cooled and concentrated in vacuo. The resulting residue was dissolved in THF (3 mL) and this solution was added dropwise to vigorously stirred cold MeOH (200 mL). The precipitated polymer was filtered, dried, dissolved in CH$_2$Cl$_2$ (3 mL) and treated with
CF$_3$COOH (6 mL) and stirred at room temperature for 5 h. The volatiles were then removed in vacuo, and the residue was dissolved in THF (3 mL) and precipitated from cold MeOH (200 mL). The precipitated polymer was filtered and dried to afford 5 as a white powder (0.77 g, 80%). $^1$H-NMR (400 MHz, CDCl$_3$) δ ppm 7.04-6.48 (m, 42H), 3.38 (bs, 2H), 2.87 (bs, 4H), 2.36 (bs, 4H), 1.83-0.90 (m, 22H). $^1$H-NMR analysis indicated that the ratio of styrene:2 incorporated into 5 was 7.6:1, which corresponds to a loading level of 1 mmol/g for piperazine.

General Procedure for Decarboxylative Doebner-Knoevenagel Condensation Reactions Catalyzed by Polymer 3

Commercially available arylaldehydes 6a-s (0.5 mmol), 7 (0.75 mmol) and catalyst 3 (0.025 mmol) were dissolved in DMF (0.5 mL). The mixture was stirred at 50 °C for 15-18 h and then the reaction mixture was purified directly by column chromatography (ethyl acetate/ hexane) to afford the desired products 8a-s. In all cases only the E-stereoisomer was observed by $^1$H NMR spectroscopy.

Characterization Data for Compounds 8a-s

Ethyl (E)-4-methoxycinnamate (8a). Purified by column chromatography (5% EtOAc/hexane) to afford 8a as a colorless oil. $^1$H-NMR (400 MHz, CDCl$_3$) δ ppm
7.64 (d, $J = 16.0$ Hz, 1H), 7.47 (d, $J = 6.7$ Hz, 2H), 6.90 (d, $J = 6.8$ Hz, 2H), 6.30 (d, $J = 16.0$ Hz, 1H), 4.25 (q, $J = 7.1$ Hz, 2H), 1.33 (t, $J = 7.1$ Hz, 3H); $^{13}$C-NMR (100 MHz, CDCl$_3$ ppm 167.5, 161.5, 144.4, 129.8, 127.3, 115.9, 114.4, 60.5, 55.5, 14.5. HRMS for C$_{12}$H$_{14}$O$_3$: calcd 206.0943, found 206.0937. This data agrees with what has been reported in the literature.$^1$

Ethyl (E)-4-hydroxycinnamate (8b). Purified by column chromatography (20% EtOAc/hexane) to afford 8b as a colorless oil. $^1$H-NMR (400 MHz, CDCl$_3$) $\delta$ ppm 7.64 (d, $J = 16.0$ Hz, 1H), 7.47 (d, $J = 6.7$ Hz, 2H), 6.90 (d, $J = 6.8$ Hz, 2H), 6.30 (d, $J = 16.0$ Hz, 1H), 4.25 (q, $J = 7.1$ Hz, 2H), 1.33 (t, $J = 7.1$ Hz, 3H); $^{13}$C-NMR (100 MHz, CDCl$_3$ ppm 167.5, 161.5, 144.4, 129.8, 127.3, 115.9, 114.4, 60.5, 55.5, 14.5. HRMS for C$_{12}$H$_{14}$O$_3$: calcd 192.0786, found 192.0784. This data agrees with what has been reported in the literature.$^2$

Ethyl (E)-4-methylecinnamate (8c). Purified by column chromatography (5% EtOAc/hexane) to afford 8c as a pale yellow oil. $^1$H-NMR (300 MHz, CDCl$_3$) $\delta$ ppm 7.65 (d, $J = 16.0$ Hz, 1H), 7.40 (d, $J = 8.0$ Hz, 2H), 7.16 (d, $J = 7.9$ Hz, 2H), 6.37 (d, $J = 16.0$ Hz, 1H), 4.25 (q, $J = 7.1$ Hz, 2H), 1.32 (t, $J = 7.1$ Hz, 3H); $^{13}$C-NMR (75 MHz, CDCl$_3$ ppm 167.5, 161.5, 144.4, 129.8, 127.3, 115.9, 114.4, 60.5, 55.5, 14.5. HRMS for C$_{12}$H$_{14}$O$_3$: calcd 192.0786, found 192.0784. This data agrees with what has been reported in the literature.$^2$
CDCl$_3$ ppm 167.2, 144.6, 140.6, 131.8, 129.6, 128.0, 117.2, 60.4, 21.5, 14.4. HRMS for C$_{12}$H$_{14}$O$_2$: calcd 190.0994, found 190.0988. This data agrees with what has been reported in the literature.$^1$

**Ethyl (E)-cinnamate (8d).** Purified by column chromatography (5% EtOAc/hexane) to afford 8d as a pale yellow oil. $^1$H-NMR (300 MHz, CDCl$_3$) δ ppm 7.68 (d, 1H, $J = 16$ Hz), 7.53-7.51 (m, 2H), 7.39-7.37 (m, 3H), 6.44 (d, 1H, $J = 16$ Hz), 4.26 (q, 2H, $J = 7.1$ Hz), 1.34 (t, 3H, $J = 7.1$ Hz); $^{13}$C-NMR (100 MHz, CDCl$_3$) δ ppm 167.1, 144.7, 134.6, 130.3, 129.0, 128.1, 118.4, 60.6, 4.4. HRMS for C$_{11}$H$_{12}$O$_2$: calcd 176.0837, found 176.0831. This data agrees with what has been reported in the literature.$^1$

**Ethyl (2E)-3-(1-naphthyl)acrylate (8e).** Purified by column chromatography (5% EtOAc/hexane) to afford 8e as a pale yellow oil. $^1$H-NMR (400 MHz, CDCl$_3$) δ ppm 8.52 (d, $J = 15.8$ Hz, 1H), 8.19 (d, $J = 8.3$ Hz, 1H), 7.87 (m, 2H), 7.75 (d, $J = 7.2$ Hz, 1H), 7.57-7.48 (m, 2H), 6.52 (d, $J = 15.8$ Hz), 4.31 (q, $J = 7.1$ Hz), 1.37 (t, $J = 7.1$ Hz); $^{13}$C-NMR (75 MHz, CDCl$_3$) ppm 167.1, 141.8, 133.9, 132.0, 131.6, 130.7, 128.9, 127.0, 126.4, 125.7, 125.2, 123.6, 121.2, 60.8, 14.6. HRMS for C$_{15}$H$_{14}$O$_2$: calcd 58
226.0994, found 226.0988. This data agrees with what has been reported in the literature.\(^3\)

**Ethyl (E)-4-bromocinnamate (8f).** Purified by column chromatography (5% EtOAc/hexane) to afford 8f as a colorless oil. \(^1\)H-NMR (300 MHz, CDCl\(_3\)) \(\delta\) ppm 6.59 (d, \(J = 16.0\) Hz, 1H), 7.50-7.34 (m, 4 H), 6.41 (d, \(J = 16.0\) Hz), 4.26 (q, \(J = 7.1\) Hz, 2H), 1.33 (t, \(J = 7.1\) Hz, 3H); \(^{13}\)C-NMR (100 MHz, CDCl\(_3\)) ppm 166.7, 143.2, 133.4, 132.1, 129.5, 124.5, 119.0, 60.7, 14.4. HRMS for C\(_{11}\)H\(_{11}\)BrO\(_2\): calcd 253.9942, found 253.9937. This data agrees with what has been reported in the literature.\(^1\)

**Ethyl (E)-4-chlorocinnamate (8g).** Purified by column chromatography (5% EtOAc/hexane) to afford 8g as a colorless oil. \(^1\)H-NMR (400 MHz, CDCl\(_3\)) \(\delta\) ppm 7.59 (d, \(J = 16.0\) Hz, 1H), 7.40 (d, \(J = 8.5\) Hz, 2H), 7.31 (d, \(J = 8.5\) Hz, 2H), 6.37(d, \(J = 16.0\) Hz, 1H), 4.23 (q, \(J = 7.1\) Hz, 2H), 1.31 (t, \(J = 7.1\) Hz, 3H); \(^{13}\)C-NMR (100 MHz, CDCl\(_3\)) ppm 166.7, 143.1, 136.1, 132.9, 129.2, 129.1, 118.9, 60.6, 14.3. HRMS for C\(_{11}\)H\(_{11}\)ClO\(_2\): calcd 210.0448, found 210.0442. This data agrees with what has been reported in the literature.\(^1\)
Diethyl (E,E)-1,4-phenylenediacylate (8h). Purified by column chromatography (5% EtOAc/hexane) to afford 8h as a white solid. \(^1\)H-NMR (300 MHz, CDCl\(_3\)) \(\delta\) ppm 7.67 (d, \(J = 16.0\) Hz, 1H), 7.53 (s, 2H), 6.47 (d, \(J = 16.0\) Hz, 1H), 4.27 (q, \(J = 7.1\) Hz, 2H), 1.34 (t, \(J = 7.1\) Hz, 3H); \(^{13}\)C-NMR (100 MHz, CDCl\(_3\)) ppm 167.4, 144.0, 136.8, 129.1, 120.0, 61.3, 14.9. HRMS for C\(_{16}\)H\(_{18}\)O\(_4\): calcd 274.1205, found 274.1200. This data agrees with what has been reported in the literature.\(^2\)

Ethyl (E)-4-nitrocinnamate (8i). Purified by column chromatography (10% EtOAc/hexane) to afford 8i as a white solid. \(^1\)H-NMR (300 MHz, CDCl\(_3\)) \(\delta\) ppm 8.25 (d, \(J = 8.8\) Hz, 2H), 7.73-7.66 (m, 3H), 6.56 (d, \(J = 16.1\) Hz, 1H), 4.29 (q, \(J = 7.1\) Hz, 2H), 1.28 (q, \(J = 7.1\) Hz, 3H); \(^{13}\)C-NMR (100 MHz, CDCl\(_3\)) ppm 166.7, 149.1, 142.3, 141.2, 129.3, 124.8, 123.2, 61.7, 14.9. HRMS for C\(_{11}\)H\(_{11}\)NO\(_4\): calcd 221.0688, found 221.0687. This data agrees with what has been reported in the literature.\(^4\)
Ethyl (E)-2,4,6-trimethoxycinnamate (8j). Purified by column chromatography (10% EtOAc/hexane) to afford 8j as a white solid. $^1$H-NMR (300 MHz, CDCl$_3$) δ ppm 8.06 (d, $J = 16.2$ Hz, 1H), 6.74 (d, $J = 16.2$ Hz, 1H), 6.10 (s, 2H), 4.24 (q, $J = 7.1$ Hz, 2H), 3.86 (s, 6H), 3.83 (s, 3H), 1.34 (t, $J = 7.1$ Hz, 3H); $^{13}$C-NMR (75 MHz, CDCl$_3$) ppm 169.1, 162.7, 161.3, 135.5, 117.7, 105.9, 90.5, 59.9, 55.7, 55.4, 14.5. This data agrees with what has been reported in the literature.$^4$

Ethyl (E)-2-methoxycinnamate (8k). Purified by column chromatography (5% EtOAc/hexane) to afford 8k as a colorless oil. $^1$H-NMR (300 MHz, CDCl$_3$) δ ppm 7.98 (d, $J = 16.2$ Hz, 1H), 7.49 (m, 1H), 7.32 (m, 1H), 6.96-6.88 (m, 2H), 6.52 (d, $J = 16.2$ Hz, 1H), 4.25 (q, $J = 7.1$ Hz), 1.33 (t, $J = 7.1$ Hz); $^{13}$C-NMR (75 MHz, CDCl$_3$) ppm 167.5, 158.4, 140.1, 131.4, 128.9, 123.5, 120.7, 118.8, 111.2, 60.4, 55.5, 14.4. This data agrees with what has been reported in the literature.$^5$

Ethyl (E)-2-methoxycinnamate (8l). Purified by column chromatography (50%
EtOAc/hexane) to afford 8l as a pale yellow solid. $^1$H-NMR (300 MHz, CDCl$_3$) $\delta$ ppm 7.86 (s, 1H), 7.65-7.54 (M, 3H), 7.45 (d, $J = 8.6$ Hz, 2H), 6.36 (d, $J = 16.0$ Hz, 1H), 4.25 (q, $J = 7.1$ Hz), 1.33 (t, $J = 7.1$ Hz); $^{13}$C-NMR (75 MHz, CDCl$_3$) ppm 169.1, 167.9, 144.0, 140.0, 130.1, 128.9, 119.8, 116.9, 60.5, 24.6, 14.3. This data agrees with what has been reported in the literature.$^2$

[Diagram of 8m]

**Ethyl (E)-3-(benzo[d][1,3]dioxol-6-yl)acrylate (8m).** Purified by column chromatography (5% EtOAc/hexane) to afford 8m as a white solid. $^1$H-NMR (300 MHz, CDCl$_3$) $\delta$ ppm 7.58 (d, $J = 15.9$ Hz, 1H), 7.01 (m, 2H), 6.80 (d, $J = 8.0$ Hz, 1H), 6.25 (d, $J = 15.9$ Hz, 1H), 6.00 (s, 1H), 4.25 (q, $J = 7.1$ Hz), 1.32 (t, $J = 7.1$ Hz); $^{13}$C-NMR (75 MHz, CDCl$_3$) ppm 167.3, 149.6, 148.4, 144.4, 129.0, 124.4, 116.2, 108.6, 106.6, 101.6, 60.5, 14.4. This data agrees with what has been reported in the literature.$^3$

[Diagram of 8n]

**Ethyl (E)-2-bromocinnamate (8n).** Purified by column chromatography (5% EtOAc/hexane) to afford 8n as a colorless oil. $^1$H-NMR (300 MHz, CDCl$_3$) $\delta$ ppm 8.04 (d, $J = 15.9$ Hz, 2H), 7.62-7.58 (m, 2H), 7.31-7.21 (m, 2H), 6.38 (d, $J = 15.9$ Hz, 1H), 4.28 (q, $J = 7.1$ Hz, 2H), 1.35 (q, $J = 7.1$ Hz, 3H); $^{13}$C-NMR (75 MHz, CDCl$_3$) ppm 167.3, 149.6, 148.4, 144.4, 129.0, 124.4, 116.2, 108.6, 106.6, 101.6, 60.5, 14.4.
CDCl$_3$ ppm 165.5, 143.0, 134.7, 133.5, 131.2, 127.9, 125.4, 121.3, 60.8, 14.4. This data agrees with what has been reported in the literature.$^1$

![structure](image1.png)

**Ethyl (E)-2,6-dichlorocinnamate (8o).** Purified by column chromatography (10% EtOAc/hexane) to afford 8o as a colorless oil. $^1$H-NMR (300 MHz, CDCl$_3$) δ ppm 7.77 (d, $J = 16.4$ Hz, 1H), 7.33 (d, $J = 8.1$Hz, 2H), 7.17 (t, $J = 8.1$ Hz, 1H), 6.58 (d, $J = 16.4$ Hz, 1H), 4.28 (q, $J = 7.1$ Hz, 2H), 1.34 (t, $J = 7.1$ Hz, 3H); $^{13}$C-NMR (75 MHz, CDCl$_3$) ppm 166.3, 138.1, 135.0, 132.1, 129.9, 128.9, 127.0, 60.9, 14.4. This data agrees with what has been reported in the literature.$^1$

![structure](image2.png)

**Ethyl (E)-4-cyanocinnamate (8p).** Purified by column chromatography (10% EtOAc/hexane) to afford 8p as a white solid. $^1$H-NMR (300 MHz, CDCl$_3$) δ ppm 7.69-7.59 (m, 5H), 6.52 (d, $J = 16.0$ Hz, 1H), 4.28 (q, $J = 7.1$ Hz, 2H), 1.35 (t, $J = 7.1$ Hz, 3H); $^{13}$C-NMR (100 MHz, CDCl$_3$ ppm 166.7, 142.7, 139.4, 133.3, 129.0, 122.5, 119.0, 113.9, 61.6, 14.9. This data agrees with what has been reported in the literature.$^2$
**Ethyl (E)-3-(pyridin-3-yl)acrylate (8q).** Purified by column chromatography (40% EtOAc/hexane) to afford 8q as a colorless liquid. $^1$H-NMR (300 MHz, CDCl$_3$) $\delta$ ppm 8.74 (s, 1H), 8.60 (d, $J = 4.0$ Hz, 1H), 7.84 (m, 1H), 7.67 (d, $J = 16.1$ Hz, 1H), 7.34 (m, 1H), 6.51 (d, $J = 16.1$ Hz, 1H), 4.28 (q, $J = 7.1$ Hz, 2H), 1.35 (t, $J = 7.1$ Hz, 3H); $^{13}$C-NMR (75 MHz, CDCl$_3$) ppm 166.2, 150.9, 149.6, 140.8, 134.2, 130.3, 123.8, 120.5, 60.8, 14.3. This data agrees with what has been reported in the literature.$^6$

**Ethyl (E)-3-(thiophen-2-yl)acrylate (8r).** Purified by column chromatography (5% EtOAc/hexane) to afford 8r as a yellow liquid. $^1$H-NMR (300 MHz, CDCl$_3$) $\delta$ ppm 7.77 (d, $J = 15.7$ Hz, 1H), 7.36 (d, $J = 5.1$ Hz, 1H), 7.24 (d, $J = 3.5$ Hz, 1H), 7.04 (m, 1H), 6.23 (d, $J = 15.7$ Hz, 1H), 4.24 (q, $J = 7.1$ Hz, 2H), 1.32 (t, $J = 7.1$ Hz, 3H); $^{13}$C-NMR (75 MHz, CDCl$_3$) ppm 166.8, 139.7, 137.0, 130.8, 128.4, 128.1, 117.1, 60.5, 14.4. This data agrees with what has been reported in the literature.$^3$
Ethyl (E)-3-(furan-2-yl)acrylate (8s). Purified by column chromatography (5% EtOAc/hexane) to afford 8s as a pale yellow liquid. $^1$H-NMR (300 MHz, CDCl$_3$) $\delta$ ppm 7.47 (s, 1H), 7.43 (d, $J = 15.7$ Hz, 1H), 6.59 (d, $J = 3.4$ Hz, 1H), 6.46 (d, $J = 1.8$ Hz, 1H), 6.31 (d, $J = 15.7$ Hz, 1H), 4.24 (q, $J = 7.1$ Hz, 2H), 1.32 (t, $J = 7.1$ Hz, 3H); $^{13}$C-NMR (75 MHz, CDCl$_3$) ppm 167.1, 151.0, 144.7, 131.0, 116.0, 114.7, 112.3, 60.5, 14.3. This data agrees with what has been reported in the literature.$^1$

References:


