



## Erratum

# Erratum to “Ionic liquids as phase transfer catalysts: Enhancing the biphasic extractive epoxidation reaction for the selective synthesis of $\beta$ -O-glycosides” [Tetrahedron Lett. 58 (2017) 3739–3742]



Cintia C. Santiago, Leticia Lafuente, Rodolfo Bravo, Gisela Díaz, Agustín Ponzinibbio\*

Laboratorio de Estudio de Compuestos Orgánicos (LADECOR), Departamento de Química, Facultad de Ciencias Exactas, Universidad Nacional de La Plata, 47 y 115, 1900 La Plata, Argentina

The publisher regrets that references 15, 16, 18 and 19 contained errors. The correct references are as follows:

15. *1-Dodecyl-3-methylimidazolium tetrafluoroborate*. Anhydrous sodium tetrafluoroborate (15.30 g, 0.14 mol), 1-methylimidazole (11.5 ml, 0.14 mol) and 1-bromododecane (33.55 ml, 0.14 mol) were placed in a round bottom flask equipped with a reflux condenser. The mixture was stirred at 80 °C for 4 h, under inert atmosphere. The resultant suspension was diluted with 25.0 ml of acetonitrile and then filtered. After the solvent was removed under reduce pressure, the ionic liquid was dried at 80 °C in vacuo (0.02 torr) for 6 h to obtained a light yellow semi-solid product (yield = 97%). <sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>):  $\delta$  8.97 (s, 1H, H-2), 7.42 (s, 1H, H-4), 7.34 (s, 1H, H-3), 4.14 (t,  $J$  = 7.78 Hz, 2 H, H-5), 3.91 (s, 3H, H-1), 1.81 (broad t, 2H, H-6), 1.25–1.18 (m, 18H, H7–15), 0.81 (t,  $J$  = 7.28 Hz, 3H, H-16). <sup>13</sup>C NMR (125 MHz, CDCl<sub>3</sub>):  $\delta$  136.20 (C2), 123.79 (C3), 122.13 (C4), 49.96 (C5), 36.22 (C1), 31.83 (C6), 30.07, 29.55, 29.53, 29.47, 29.34, 29.26, 28.93, 26.16, 22.60 (C7–C15), 14.04 (C16).
16. Ionic liquid (10% mmol) and 3,4,6-tri-O-benzyl-D-glucal (200 mg, 0.48 mmol) were placed in a round-bottomed flask and dissolved in 2.0 ml of dichloromethane, then were added acetone (0.8 ml) and saturated NaHCO<sub>3</sub> aqueous solution (1.5 ml). To this vigorously stirred biphasic mixture was added dropwise a solution of oxone (600 mg, 0.9760 mmol in 2.5 ml of water) at 0 °C for 15 min, maintaining the temperature 20 min more. After completion of the reaction, the mixture was extracted with dichloromethane (5  $\times$  2.0 ml) and the combined organic phases were dried over sodium sulphate (Na<sub>2</sub>SO<sub>4</sub>). After filtration, the solvent was evaporated and the residue was immediately dissolved in anhydrous methanol (5.0 ml) and stirred for 12 h at room temperature. This solution was concentrated under reduced pressure and the residue was purified by column chromatography to obtain pure methyl 3,4,6-tri-O-benzyl- $\beta$ -D-glucopyranoside. <sup>1</sup>H

- NMR (300 MHz, CCl<sub>3</sub>D):  $\delta$  7.38–7.15 (m, 15H, 3 C<sub>6</sub>H<sub>5</sub>), 4.94–4.81 y 4.64–4.52 (m, 6H, CH<sub>2</sub>Ph), 4.19 y 4.16 (d, 1H,  $J$  = 7.26 Hz, H-1), 3.74 (m, 2H, H-6), 3.60–3.58 (m, 3H, H-3, H-4, H-5), 3.55 (s, 3H, OCH<sub>3</sub>), 3.53 (broad s, 1H, H-2), 2.46 (broad s, 1H, OH). <sup>13</sup>C NMR (75 MHz, CCl<sub>3</sub>D):  $\delta$  138.65, 138.16, 138.11, 128.56–128.27, 127.99–127.61 (3 C<sub>6</sub>H<sub>5</sub>), 103.74 (C1), 84.54 (C3), 77.68 (C4), 75.22 (C10), 75.17 (C9), 75.03 (C8), 74.66 (C2), 73.56 (C5), 68.90 (C6); 57.17 (C22).
18. Ionic liquid (10% mmol) and 3,4,6-tri-O-benzyl-D-glucal (200 mg, 0.48 mmol) were placed in a round-bottomed flask and dissolved in 2.0 ml of dichloromethane, then were added acetone (0.8 ml) and saturated NaHCO<sub>3</sub> aqueous solution (1.5 ml). To this vigorously stirred biphasic mixture was added dropwise a solution of oxone (600 mg, 0.9760 mmol in 2.5 ml of water) at 0 °C for 15 min, maintaining this temperature 20 min more. The reaction was controlled by TLC, until no further progress was observed. The mixture was extracted with dichloromethane (5  $\times$  2.0 ml) and the combined organic phases were dried over sodium sulphate (Na<sub>2</sub>SO<sub>4</sub>). This solution was concentrated under reduced pressure and the residue was purified by column chromatography. <sup>1</sup>H NMR (500 MHz, CCl<sub>3</sub>D):  $\delta$  7.43–7.27 (m, 15H, 3 C<sub>6</sub>H<sub>5</sub>), 5.43 (d, 1H,  $J$  = 3.16 Hz, H-1), 4.92–4.73 (m, 1H, H-2), 4.66–4.43 (m, 6H, CH<sub>2</sub>Ph), 4.30 (d, 1H,  $J$  = 7.55 Hz, H-C5), 4.01 (d, 1H, H-4), 3.59–3.47 (m, 2H, H-C6), 1.86 and 1.38 (m, 2H, OH C2 and C3). <sup>13</sup>C NMR (125 MHz, CCl<sub>3</sub>D):  $\delta$  138.15–136.01, 128.50–127.94 (C<sub>6</sub>H<sub>5</sub>), 93.38 (C1), 82.73 (C4), 78.39 (C3), 75.22 (C2), 74.87–73.58 (CH<sub>2</sub>Ph), 73.23 (C5), 69.21 (C6). Minor  $\beta$  anomer:  $\delta$  4.82 and 97.39 (H-1 and C1).
  19. <sup>1</sup>H NMR (600 MHz, CCl<sub>3</sub>D):  $\delta$  7.42–7.18 (m, 15H, 3 C<sub>6</sub>H<sub>5</sub>), 5.00 (d, 1H, 11.37 Hz, H-5), 4.88–4.53 (m, 6H, CH<sub>2</sub>Ph), 3.90 (d, 1H,  $J$  = 8.83 Hz, H-1), 3.73–3.71 (dd, 1H, H-6), 3.66–3.53 (m, 5H, H-3, H-4, H-6 and CH<sub>2</sub>OH), 3.38–3.35 (t, 1H, 8.91 Hz, H-2), 3.03–3.00 (m, 2H, CH<sub>2</sub>N). <sup>13</sup>C NMR (150 MHz, CCl<sub>3</sub>D):  $\delta$  138.71, 138.08, 137.86, 128.61–127.72 (C<sub>6</sub>H<sub>5</sub>), 90.91 (C1), 85.54 (C3), 77.67 (C4), 75.87 (C5), 75.09 (C2), 75.02, 74.58, 73.52 (CH<sub>2</sub>Ph), 68.98 (C6), 62.99 (CH<sub>2</sub>OH), 49.48 (NCH<sub>2</sub>).

The publisher would like to apologise for any inconvenience caused.

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\* Corresponding author.

E-mail address: [ponzinibbio@quimica.unlp.edu.ar](mailto:ponzinibbio@quimica.unlp.edu.ar) (A. Ponzinibbio).