Efficient reductive selenation of aromatic aldehydes to symmetrical
diselenides with Se/CO/H₂O under atmospheric pressure

Fengshou Tian, Zhengkun Yu* and Shiwei Lu*

*National Engineering Research Center for Catalysis, Dalian Institute of Chemical
Physics, Chinese Academy of Sciences, 457 Zhongshan Road, Dalian, Liaoning
116023, P. R. China*

Experimental Section (Supporting Information)

Contents:

1) NMR spectroscopic data for compounds 3b , 8b , 12b-14b	S2
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Bis(3-methylbenzyl) diselenide (3b). ^1H NMR (400 MHz, CDCl_3 , 23 °C) δ 7.36 (m, 2H, CH), 7.22 (m, 6 H, CH), 3.98 (s, 4 H, CH_2), 2.52 (s, 6 H, CH_3); ^{13}C { ^1H } NMR (400 MHz, CDCl_3 , 23 °C) δ 138.62 and 137.54 (s each, C_q , *i*-C), 129.50, 128.05, 127.56 and 125.82 (s each, CH), 32.38 (s, CH_3), 21.19 (s, CH_2).

Bis(4-dimethylaminobenzyl) diselenide (8b). M.p. 102 – 104 °C. ^1H NMR (400 MHz, CDCl_3 , 23 °C) δ 7.15 and 6.67 (dd each, 4 : 4 H, J = 6.51 Hz, CH), 3.87 (s, 4 H, CH_2), 2.94 (s, 12 H, $\text{N}(\text{CH}_3)_2$); ^{13}C { ^1H } NMR (400 MHz, CDCl_3 , 23 °C) δ 149.70 and 126.56 (s each, C_q each, *i*-C), 129.84 and 112.44 (s each, 4 : 4 CH), 40.60 (s, $\text{N}(\text{CH}_3)_2$), 32.90 (s, CH_2).

Bis(2-thiophenemethyl) diselenide (12b). ^1H NMR (400 MHz, CDCl_3 , 23 °C) δ 7.43, 6.32 and 6.23 (m each, 2 : 2 : 2 H, CH), 3.96 (s, 4 H); ^{13}C { ^1H } NMR (400 MHz, CDCl_3 , 23 °C) δ 152.23 (s, C_q , *i*-C), 142.64, 111.35 and 108.54 (s each, 2 : 2 : 2 CH), 24.52 (s, CH_2).

Bis(3-thiophenemethyl) diselenide (13b). M.p. 94 – 96 °C. ^1H NMR (400 MHz, CDCl_3 , 23 °C) δ 7.27, 7.09 and 7.02 (m each, 2 : 2 : 2 H, CH), 3.86 (s, 4 H, CH_2); ^{13}C { ^1H } NMR (400 MHz, CDCl_3 , 23 °C) δ 138.99 (s, C_q , *i*-C), 128.28, 125.80 and 122.52 (s each, 2 : 2 : 2 CH), 26.36 (s, CH_2).

Bis(3-pyridylmethyl) diselenide (14b). M.p. 77 – 79 °C. ^1H NMR (400 MHz, CDCl_3 , 23 °C) δ 8.46, 8.38, 7.47 and 7.18 (m each, 2 : 2 : 2 : 2 H, CH), 3.72 (s, 4H, CH_2); ^{13}C { ^1H } NMR (400 MHz, CDCl_3 , 23 °C) δ 149.84, 148.39, 136.22 and 123.32 (s each, 2 : 2 : 2 : 2 CH), 28.72 (s, CH_2).