Supporting Information File 1

Useful extensions of the Henry reaction: expeditious routes to nitroalkanes and nitroalkenes in aqueous media

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Synthetic procedures and characterization data

Instruments employed: CEM Discover Focused MicrowaveTM Synthesis System (microwave synthesizer); Perkin-Elmer 410 (FTIR); Bruker AV-400 (NMR); Micromass Q-TOF AMPS MAX 10/6A (HRMS); Stuart SMP10 (melting point); Büchi Rotavapor R-200 (rotary evaporator).

IR values are for neat samples and are quoted in cm^{-1} . NMR spectra were recorded in CDCl_3 solution with tetramethylsilane as internal standard at either 400 MHz (δ_{H}) or 100 MHz (δ_{C}); the coupling constants (J) are in Hz. Abbreviations: mp (melting point), s (singlet); d (doublet); t (triplet); q (quartet); br (broad); dd (doublet of doublet), etc. All microwave reactions are carried out in CEM Discover Focused MicrowaveTM Synthesis System using 10 ml reaction vessel. The nomenclatures of all the compounds were derived by ChemDraw (CambridgeSoft). $(n\text{-Bu})_3\text{SnH}$ was purchased from Sigma-Aldrich Co and used without any further purification. Millipore water was employed for all the reactions.

Four different reported methods were utilized for the synthesis of 2-nitroalcohols. The 2-nitroalcohols **4a-4b**, **4d** & **4n-s** were synthesized by method-1;¹ **4c**, **4e-g** & **4i-j** by method-2;² **4k-l** by method-3³ and **4h** & **4m** by method-4.⁴

Evaluation of structure of products

Scheme 1. Synthesis of nitroalkanes (**5**) and (*E*)-nitroalkenes (**6**) from 2- nitroalcohols (**4**)

Table 1. IR and NMR analysis of compounds **4**, **5** and **6**

2-Nitroalcohol				Nitroalkane			<i>(E)</i> -Nitroalkene			
4	$\nu_{\max}$ (-OH str)	δ_{H}		5	δ_{H}		6	$\nu_{\max}$ (-HC=CH- str)	δ_{H} (d, $J \approx 13$ Hz)	
		(α CH)	(β CH)		(α CH)	(β CH)			(α CH)	(β CH)
4a	3544	4.5	5.4	5a	4.6	3.3	6a ⁵	1633	8.0	7.6
4b	3543	4.5	5.4	5b	4.6	3.3	6b ^{5b}	1631	8.0	7.9
4c	3546	4.5	6.2	5c	4.7	3.8	6c	1632	8.0	7.6
4d	3464	4.5	5.3	5d	4.5	3.3	6d ^{5b}	1624	8.0	7.5
4e	3498	4.5	5.3	5e	4.5	3.2	6e ⁶	1654	7.9	7.5
4f	3482	4.6	5.4	5f	---	---	6f	1618	7.9	7.5
4g	3513	4.5	5.3	5g	4.6	3.3	---	---	---	---
4h	3543	4.5	5.8	5h	4.6	3.3	---	---	---	---
4i	3526	4.5	5.8	5i	4.7	3.5	6i ⁶	1622	8.0	7.6
4j	3526	4.6	5.6	5j	4.8	3.6	---	---	---	---
4k	3386	4.5	5.0	5k	4.5	2.9	6k ^{5b}	1640	7.8	7.4
4l	3540	4.7	5.4	5l	4.6	3.4	6l ⁷	1620	7.8	7.6
4m	3530	4.7	5.7	5m	4.6	3.6	6m ^{5b}	1621	8.2	7.6
4n	3404	4.4	4.3	5n	4.3	2.7	6n	1650	7.3	7.0
4o	3429	4.4	4.3	5o	4.3	2.0	6o	1655	7.0	7.0
4p	3416	4.4	4.3	5p	4.3	2.0	6p ⁸	1650	7.3	6.9
4q	3433	4.5	4.1	5q	4.4	1.9	6q ^{5b}	1644	7.2	6.9
4r	3538	4.7	5.3	5r	---	---	---	---	---	---
4s	3449	4.2	4.5	5s	---	---	---	---	---	---

The geometry of nitroalkenes (**6**) was determined by correlating the chemical shift (δ) and coupling constant (J) values of α & β CH of nitroalkenes in ^1H NMR spectra with corresponding literature values (Table 1). From the ^1H NMR data reaction mixture, it was clear that only *E* isomer has formed but not the *Z* isomer and the spectral data were in agreement with literature values. The ^1H NMR literature data for nitroalkenes **6c**, **6f**, **6n** & **6o** are not available, and they are presumably formed as the *E* isomers based on their chemical shift and coupling constant values.

Characterization data for nitroalkanes

(2-Nitroethyl)benzene (**5a**). TLC R_f 0.65 (20% ethyl acetate-hexane); Purified on silica gel (ethyl acetate-hexane 3:97-6:94); Mp 56 °C (lit.⁹ 56-58 °C); ν_{max} 3065, 3032, 1603, 1555, 1455, 1380, 1114, 752; δ_{H} 7.35-7.20 (5H, m), 4.63-4.59 (2H, t, J 7.4), 3.34-3.30 (2H, t, J 7.4); δ_{C} 135.6, 128.9, 128.5, 127.4, 76.2, 33.4; HRESIMS: 174.0533 (Calcd. for $\text{C}_8\text{H}_9\text{NO}_2 + \text{Na}$ 174.0531).

1-Methyl-4-(2-nitroethyl)benzene (**5b**). TLC R_f 0.65 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Mp 100 °C (lit.¹⁰ 99-100 °C); ν_{max} 3108, 2925, 1606, 1552, 1517, 1499, 1339, 965, 810, 722; δ_{H} 7.45-7.43 (2H, d, J 8.0), 7.26-7.24 (2H, d, J 8.0), 4.60-4.56 (2H, t, J 7.4), 3.29-3.25 (2H, t, J 7.4), 2.41 (s, 3H); δ_{C} 139.1, 136.2, 130.1, 129.2, 76.4, 33.0, 21.6; HRESIMS: 188.0685 (Calcd. for $\text{C}_9\text{H}_{11}\text{NO}_2 + \text{Na}$ 188.0687).

1-(2-Nitroethyl)naphthalene (**5c**). TLC R_f 0.70 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Mp 45 °C (lit.¹¹ 45-46 °C); ν_{max} 3101, 2932, 1603, 1555, 1510, 1486, 1328, 945, 850, 702; δ_{H} 7.98-7.78 (3H, m), 7.61-7.35 (4H, m), 4.74-4.70 (2H, t, J 7.8), 3.82-3.78 (2H, t, J 7.8); δ_{C} 151.9, 133.9, 131.3, 129.2, 128.3, 127.1, 126.7, 125.9, 125.5, 122.5, 75.4, 30.7; HRESIMS: 224.0683 (Calcd. for $\text{C}_{12}\text{H}_{11}\text{NNaO}_2 + \text{Na}$ 224.0687).

1-Methoxy-4-(2-nitroethyl)benzene (**5d**). TLC R_f 0.65 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Mp 85 °C (lit.¹⁰ 85.5-86.5 °C); ν_{max} 3105, 3006, 2958, 2936, 2838, 1603, 1578, 1522, 1514, 1433, 1379, 1250, 1032, 827; δ_{H} 7.13-7.11 (2H, d, J 8.4), 6.87-6.85 (2H, d, J 8.4), 4.59-4.55 (2H, t, J 7.2), 3.79 (3H, s), 3.28-3.24 (2H, t, J 7.2); δ_{C} 158.8, 129.6, 127.5, 114.3, 76.6, 55.2, 32.7; HRESIMS: 204.0634 (Calcd. for $\text{C}_9\text{H}_{11}\text{NNaO}_3 + \text{Na}$ 204.0637).

5-(2-Nitroethyl)benzo[d][1,3]dioxole (5e). TLC R_f 0.65 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Mp 157 °C (lit.¹⁰ 155-156 °C); $\nu_{\max}$ 2903, 1603, 1552, 1505, 1490, 1446, 1379, 1248, 1102, 1039, 930, 812; δ_H 6.76-6.64 (3H, m), 5.95 (2H, s), 4.58-4.54 (2H, t, J 7.2), 3.25-3.21 (2H, t, J 7.2); δ_C 148.0, 146.9, 129.2, 121.7, 108.9, 108.6, 101.1, 33.2; HRESIMS: 218.0426 (Calcd. for $C_9H_9NO_4 + Na$ 218.0429).

1-Chloro-4-(2-nitroethyl)benzene (5g). TLC R_f 0.70 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Mp 110 °C (lit.¹⁰ 111-112 °C); $\nu_{\max}$ 2919, 2851, 1601, 1541, 1532, 1514, 1375, 1180, 1091, 1015, 808; δ_H 7.31-7.29 (2H, d, J 8.0), 7.16-7.13 (2H, d, J 8.4), 4.61-4.58 (2H, t, J 7.2), 3.32-3.27 (2H, t, J 7.2); δ_C 134.1, 133.4, 129.9, 129.1, 75.9, 32.7; HRESIMS: 208.0143 (Calcd. for $C_8H_8ClNO_2 + Na$ 208.0141).

1-Chloro-2-(2-nitroethyl)benzene (5h). TLC R_f 0.70 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Mp 42 °C (lit.¹⁰ 44 °C); $\nu_{\max}$ 3066, 2920, 2852, 1599, 1558, 1542, 1475, 1375, 1053, 753; δ_H 7.40-7.38 (1H, m), 7.24-7.22 (3H, m), 4.67-4.63 (2H, t, J 7.2), 3.34-3.43 (2H, t, J 7.2); δ_C 133.9, 133.3, 131.1, 129.8, 129.1, 127.3, 74.2, 31.4; HRESIMS: 208.0140 (Calcd. for $C_8H_8ClNO_2 + Na$ 208.0141).

1-Nitro-4-(2-nitroethyl)benzene (5i). TLC R_f 0.70 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Mp 95 °C (lit.¹¹ 96-97 °C); $\nu_{\max}$ 2985, 2921, 2852, 1601, 1574, 1563, 1557, 1519, 1382, 1345, 1108, 874, 858, 743; δ_H 8.22-8.20 (2H, d, J 8.8), 7.42-7.40 (2H, d, J 8.4), 4.70-4.67 (2H, t, J 7.0), 3.46-3.42 (2H, t, J 7.0); δ_C 147.4, 143.1, 129.5, 124.2, 75.2, 32.9; HRESIMS: 219.0379 (Calcd. for $C_8H_8N_2O_4 + Na$ 219.0382).

1-Nitro-2-(2-nitroethyl)benzene (5j). TLC R_f 0.70 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Mp 97 °C (lit.¹⁰ 98-99 °C); $\nu_{\max}$ 2919, 2852, 1598, 1541, 1523, 1340, 1018, 854, 787, 744; δ_H 8.09-8.07 (1H, d, J 8.0), 7.63-7.59 (1H, t, J 7.4), 7.51-7.47 (1H, t, J 7.8), 7.42-7.40 (1H, d, J 7.6), 4.80-4.77 (2H, t, J 6.8), 3.63-3.60 (2H, t, J 6.8); δ_C 148.8, 133.9, 132.8, 131.1, 128.9, 125.5, 75.2, 31.2; HRESIMS: 219.0380 (Calcd. for $C_8H_8N_2NaO_4 + Na$ 219.0382).

(E)-(4-Nitrobut-1-en-1-yl)benzene (5k). TLC R_f 0.70 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Liquid; $\nu_{\max}$ 3030, 2921, 1599, 1545, 1454, 1382, 1194, 1042, 962, 887, 748, 699; δ_H 7.35-7.26 (5H, m), 6.55-6.51 (1H, d, J 16.0), 6.15-6.10 (1H, m), 4.53-4.49 (2H, t, J 6.8), 2.94-2.89 (2H, q, J 6.8); δ_C 136.5, 134.1, 128.6, 127.8, 126.3, 122.9, 74.993, 30.8; HRESIMS: 200.0689 (Calcd. for $C_{10}H_{11}NO_2 + Na$ 200.0687).

2-(2-Nitroethyl)furan (5l). TLC R_f 0.70 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Liquid; $\nu_{\max}$ 3108, 2926, 1632, 1555, 1432, 1369, 1232, 1139, 1042, 869, 775, 699; δ_H 7.34-7.26 (1H, s), 6.30-6.30 (1H, d, J 1.6), 6.15-6.14 (1H, d, J 2.8), 4.66-4.62 (2H, t, J 7.2), 3.38-3.35 (2H, t, J 7.0); δ_C 149.3, 142.2, 110.5, 107.4, 73.3, 26.0; HRESIMS: 164.0322 (Calcd. for $C_6H_7NO_3 + Na$ 164.0324).

2-(2-Nitroethyl)thiophene (5m). TLC R_f 0.70 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Liquid; $\nu_{\max}$ 3110, 2919, 1636, 1552, 1429, 1379, 1235, 1141, 1046, 863, 773, 701; δ_H 7.21-7.20 (1H, d, J 5.2), 6.96-6.94 (1H, t), 6.89-6.89 (1H, d, J 2.4), 4.65-4.61 (2H, t, J 7.2), 3.56-3.53 (2H, t, J 7.2); δ_C 137.3, 127.3, 126.3, 124.9, 75.9, 27.5; HRESIMS: 180.0089 (Calcd. for $C_6H_7NO_2S + Na$ 180.0095).

1-Nitropentane (5n). TLC R_f 0.70 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Liquid; $\nu_{\max}$ 2959, 2924, 2874, 1551, 1523, 1443, 1282, 1020, 668; δ_H 4.40-4.36 (2H, t, J 6.8), 2.74-2.63 (2H, m), 1.68-1.61 (4H, m), 0.94-0.90 (3H, t, J 7.2); δ_C 75.6, 31.4, 21.9, 19.5; HRESIMS: 140.0682 (Calcd. for $C_5H_{11}NO_2 + Na$ 140.0687).

1-Nitrooctane (5o). TLC R_f 0.70 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Liquid; $\nu_{\max}$ 2962, 2933, 2875, 1554, 1462, 1379, 1019, 738; δ_H 4.40-4.36 (2H, t, J 7.2), 2.04-1.99 (2H, m), 1.38-1.28 (10H, m), 0.90-0.87 (3H, t, J 5.8); δ_C 75.7, 30.1, 27.7, 27.34, 26.2, 25.9, 22.6, 14.0; HRESIMS: 182.1155 (Calcd. for $C_8H_{17}NO_2 + Na$ 182.1157).

4-Methyl-1-nitropentane (5p). TLC R_f 0.70 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Liquid; $\nu_{\max}$ 2960, 2933, 2874, 1556, 1469, 1380, 1369, 1171, 780; δ_H 4.38-4.35 (2H, t, J 7.0), 2.078-1.976 (2H, m), 1.78-1.70 (1H, m), 1.23-1.17 (2H, m), 0.92-0.91 (6H,

d, J 7.2); δ_{C} 75.2, 38.4, 25.3, 23.0, 22.3; HRESIMS: 154.0845 (Calcd. for $\text{C}_6\text{H}_{13}\text{NO}_2 + \text{Na}$ 154.0844).

(2-Nitroethyl)cyclohexane (5q). TLC R_f 0.70 (20% Ethyl acetate-hexane); Purified on silica gel (Ethyl acetate-hexane 3:97-6:94); Liquid; ν_{max} 3112, 2927, 2854, 1553, 1524, 1449, 1350, 1176, 967, 772, 645; δ_{H} 4.43-4.39 (2H, t, J 7.2), 1.94-1.89 (2H, q, J 7.2), 1.73-1.70 (5H, m), 1.36-1.13 (5H, m), 0.99-0.91 (2H, m); δ_{C} 73.8, 34.9, 32.7, 26.2, 25.9; HRESIMS: 180.1003 (Calcd. for $\text{C}_8\text{H}_{15}\text{NO}_2 + \text{Na}$ 180.1000).

Characterization data for nitroalkenes

(E)-2-Nitrostyrene (6a).⁵ Mp 56 °C (lit.¹⁰ 58 °C); ν_{max} 3111, 2926, 1633, 1578, 1514, 1497, 1344, 967; δ_{H} 8.02-7.98 (1H, d, J 13.6), 7.60-7.43 (6H, m); δ_{C} 139.0, 137.1, 132.1, 130.0, 129.3, 129.1; HRESIMS: 172.0372 (Calcd. for $\text{C}_8\text{H}_7\text{NO}_2 + \text{Na}$ 172.0374).

(E)-1-Methyl-4-(2-nitrovinyl)benzene (6b).^{5b} Mp 101-102 °C (lit.¹² 103 °C); ν_{max} 3109, 3041, 2924, 1632, 1599, 1556, 1498, 1415, 1341, 1266, 965, 810; δ_{H} 8.02-7.99 (1H, d, J 13.6), 7.60-7.57 (1H, d, J 13.6), 7.47-7.45 (2H, m), 7.28-7.28 (2H, m), 2.43 (3H, s); δ_{C} 139.2, 136.3, 134.1, 130.1, 129.2, 125.8, 21.8; HRESIMS: 186.0530 (Calcd. for $\text{C}_9\text{H}_9\text{NO}_2 + \text{Na}$ 186.0531).

(E)-1-(2-Nitrovinyl)naphthalene (6c). Mp 82-84 °C (lit.¹² 84 °C); ν_{max} 3052, 2853, 2726, 1631, 1597, 1573, 1508, 1340, 1217, 1170, 1055, 802, 772; δ_{H} 8.06-8.04 (3H, m), 7.96-7.92 (3H, m), 7.68-7.64 (3H, m); δ_{C} 138.3, 135.9, 133.6, 133.5, 132.5, 131.4, 131.3, 130.4, 127.6, 126.3, 125.3, 122.8; HRESIMS: 222.0530 (Calcd. for $\text{C}_{12}\text{H}_9\text{NO}_2 + \text{Na}$ 222.0531).

(E)-1-Methoxy-4-(2-nitrovinyl)benzene (6d).^{5b} Mp 86 °C (lit.¹³ 86-87 °C); ν_{max} 3100, 2917, 2850, 1624, 1599, 1548, 1514, 1503, 1342, 958, 839; δ_{H} 7.99-7.97 (1H, d, J 13.3), 7.54-7.50 (3H, m), 6.97-6.95 (2H, d, J 8.8), 3.87 (3H, s); δ_{C} 162.9, 139.0, 135.0, 131.1, 122.5, 114.9, 55.5; HRESIMS: 202.0478 (Calcd. for $\text{C}_9\text{H}_9\text{NO}_3 + \text{Na}$ 202.0480).

(E)-5-(2-Nitrovinyl)benzo[d][1,3]dioxole (6e).⁶ Mp 163 °C (lit.¹⁴ 164-165 °C); ν_{max} 3105, 2918, 2852, 1654, 1602, 1578, 1501, 1448, 1420, 1336, 1262, 1099, 1036, 814, 655; δ_{H} 7.94-7.91 (1H, d, J 13.2), 7.49-7.46 (1H, d, J 13.6), 7.09-7.07 (1H, d, J 8.0), 7.00 (1H, s), 6.88-6.86 (2H, d, J 8.8), 6.06

(3H, s); δ_{C} 148.7, 148.7, 139.060, 135.3, 126.6, 124.1, 109.0, 106.9, 102.0; HRESIMS: 216.0273 (Calcd. for $\text{C}_9\text{H}_7\text{NO}_4 + \text{Na}$ 216.0273).

(E)-1,2,3-Trimethoxy-5-(2-nitrovinyl)benzene (6f). Mp 120 °C (lit.¹⁵ 121-123 °C); ν_{max} 3103, 2926, 2844, 1618, 1582, 1556, 1508, 1499, 1324, 1244, 1131, 967, 827; δ_{H} 7.96-7.92 (1H, d, J 13.6), 7.55-7.52 (1H, d, J 13.6), 6.76 (2H, s), 3.92 (3H, s), 3.91 (6H, s); δ_{C} 153.7, 141.8, 139.3, 136.4, 125.3, 106.5, 61.1, 56.3; HRESIMS: 262.0694 (Calcd. for $\text{C}_{11}\text{H}_{13}\text{NO}_5 + \text{Na}$ 262.0691).

(E)-1-Nitro-4-(2-nitrovinyl)benzene (6i).⁶ Mp 200-202 °C (lit.¹⁶ 201 °C); ν_{max} 3109, 2958, 2918, 2850, 1622, 1603, 1574, 1508, 1495, 1342, 1311, 1253, 1175, 1030, 972, 833; δ_{H} 8.35-8.33 (2H, d, J 8.8), 8.07-8.04 (1H, d, J 13.6), 7.76-7.74 (1H, d, J 8.4), 7.68-7.64 (2H, d, J 14.0); δ_{C} 138.3, 119.3, 37.5, 31.4, 25.6, 25.4; HRESIMS: 217.0223 (Calcd. for $\text{C}_8\text{H}_6\text{N}_2\text{O}_4 + \text{Na}$ 217.0225).

((1E,3E)-4-Nitrobuta-1,3-dien-1-yl)benzene (6k).^{5b} Mp 41 °C (lit.¹⁷ 39-40 °C); ν_{max} 3110, 3051, 2935, 2851, 1640, 1604, 1560, 1534, 1198, 1109, 966, 839, 741, 707; δ_{H} 7.80-7.74 (1H, t, J 12.2), 7.52-7.50 (2H, m), 7.40-7.39 (3H, m), 7.25-7.22 (1H, d, J 13.2), 7.17-7.13 (1H, d, J 15.6), 6.89-6.83 (1H, m); δ_{C} 146.0, 139.1, 138.600, 135.1, 130.3, 129.0, 127.7, 120.5; HRESIMS: 198.0528 (Calcd. for $\text{C}_{10}\text{H}_9\text{NO}_2 + \text{Na}$ 198.0531).

(E)-2-(2-Nitrovinyl)furan (6l).⁷ Mp 74 °C (lit.¹⁸ 74-75 °C); ν_{max} 3115, 2953, 2918, 2850, 1620, 1536, 1485, 1317, 1268, 1016, 935, 825, 767; δ_{H} 7.80-7.76 (1H, d, J 13.2), 7.59 (1H, s), 7.54-7.51 (1H, d, J 13.2), 6.90-6.89 (1H, d, J 3.6), 6.59-6.58 (1H, m); δ_{C} 146.8, 146.6, 134.9, 125.4, 119.9, 113.3; HRESIMS: 162.0165 (Calcd. for $\text{C}_6\text{H}_5\text{NO}_3 + \text{Na}$ 162.0167).

(E)-2-(2-Nitrovinyl)thiophene (6m).^{5b} Mp 81-83 °C (lit.¹⁵ 80-82 °C); ν_{max} 3108, 3093, 3036, 2953, 2919, 2850, 1621, 1614, 1545, 1504, 1361, 1325, 952, 822, 724; δ_{H} 8.17-8.14 (1H, d, J 13.6), 7.57-7.56 (1H, d, J 4.3), 7.50-7.46 (2H, m), 7.16-7.14 (1H, t, J 4.8); δ_{C} 146.8, 146.6, 134.8, 125.4, 120.0, 113.3; HRESIMS: 177.9936 (Calcd. for $\text{C}_6\text{H}_5\text{NO}_2\text{S} + \text{Na}$ 177.9939).

(E)-1-Nitropent-1-ene (6n). Liquid; ν_{max} 2964, 2935, 2875, 1650, 1526, 1505, 1353, 960, 729; δ_{H} 7.31-7.24 (1H, m), 7.01-6.97 (1H, d, J 13.6), 2.29-2.23 (2H, q, J 7.3), 1.61-1.52 (2H, m) 1.00-0.97 (3H, t, J 7.4); δ_{C} 142.5, 139.6, 30.3, 21.0, 13.5; HRESIMS: 138.0529 (Calcd. for $\text{C}_5\text{H}_9\text{NO}_2 + \text{Na}$ 138.0531).

(E)-1-Nitrooct-1-ene (6o). Liquid; $\nu_{\max}$ 2928, 2858, 1655, 1529, 1467, 1378, 1352, 959, 726; δ_{H} 7.316-7.246 (m, 1H), 7.00-6.97 (1H, d, J 13.2), 2.29-2.24 (2H, q, J 7.3), 1.55-1.31 (8H, m), 0.91-0.88 (3H, t, J 6.8); δ_{C} 142.8, 139.5, 31.4, 28.7, 28.4, 27.6, 22.4, 13.9; HRESIMS: 180.1003 (Calcd. for $\text{C}_8\text{H}_{15}\text{NNaO}_2 + \text{Na}$ 180.1000).

(E)-4-Methyl-1-nitropent-1-ene (6p).⁸ Liquid; $\nu_{\max}$ 2961, 2932, 2874, 1650, 1526, 1505, 1350, 968, 733; δ_{H} 7.29-7.22 (1H, m), 6.99-6.97 (1H, d, J 13.2), 2.18-2.14 (2H, m), 1.89-1.79 (1H, m) 0.98-0.97 (6H, d, J 6.8); δ_{C} 141.6, 140.1, 37.2, 27.8, 22.2; HRESIMS: 152.0690 (Calcd. for $\text{C}_6\text{H}_{11}\text{NO}_2 + \text{Na}$ 152.0687).

(E)-(2-Nitrovinyl)cyclohexane (6q).^{5b} Liquid; $\nu_{\max}$ 2928, 2855, 1644, 1555, 1523, 1450, 1383, 1350, 1203, 1112, 1066, 964, 894, 748, 652; δ_{H} 7.25-7.20 (1H, m), 6.95-6.91 (1H, d, J 13.6), 2.29-2.25 (1H, m), 1.29-1.07 (10H, m); δ_{C} 138.3, 119.3, 37.5, 31.4, 25.6, 25.4; HRESIMS: 178.0840 (Calcd. for $\text{C}_8\text{H}_{13}\text{NNaO}_2 + \text{Na}$ 178.0844).

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