Supplementary Material

RAPID CONVENTIONAL AND MICROWAVE-ASSISTED DECARBOXYLATION OF L-HISTIDINE AND OTHER AMINO ACIDS VIA ORGANOCATALYSIS WITH R-CARVONE UNDER SUPERHEATED CONDITIONS

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Note: D₂O solvent signal is suppressed in all proton spectra for clarity.

methylamine hydrochloride^[1], 235-237 °C; white powder from PrOH; δ_H 2.43 (s); δ_C

24.64

ethylamine hydrochloride^[2], 108-109 °C; white plates from PrOH; δ_{H} 1.07 (3H t J=8), 2.83 (2H q J=8); δ_{C} 11.71, 34.82

2-methylpropan-1-amine hydrochloride ^[3], 178-182 °C; light brown powder from PrOH;

δ_{H} 0.83 (6H d J=4), 1.79 (1H m J=8), 2.69 (2H d J=8); δ_{C} 18.76, 26.20, 46.27

pyrrolidine hydrochloride, δ_{H} 1.83 (4H t J=4), 3.11 (4H t J=4); δ_{C} 23.56, 45.44

3-methylbutan-1-amine hydrochloride^[4], 213-215 °C; white powder from hexane; δ_{H} 0.76 (6H d J=4), 1.38 (2H q J=8), 1.48 (1H m J=8), 2.85 (2H t J=8); δ_{C} 21.27, 24.87, 35.42, 37.87

(R)-1-aminopropan-2-ol hydrochloride^[5], 75-80 °C; white powder from EtOH; δ_{H} 1.08

(3H d J=4), 2.73 (1H dd J=8), 2.95 (1H dd J=12), 3.88 (1H m J=4); δ_{C} 19.53, 45.46, 63.83

histamine dihydrochloride^[6], 239-244 °C; white powder from EtOH; δ_{H} 3.00 (2H t J=8), 3.18 (2H t J=8), 7.23 (1H s), 8.50 (1H s); δ_{C} 22.26, 38.11, 117.08, 128.49, 134.00

tryptamine hydrochloride^[7], 245-248 °C; brown powder from EtOH; δ_{H} 2.97 (2H t J=9), 3.13 (2H t J=8), 7.01 (1H t J=4), 7.07-7.12 (2H m), 7.34 (1H d J=4), 7.49 (1H d J=4); δ_{C} 22.88, 40.03, 108.85, 112.36, 117.13, 118.49, 121.61, 123.66, 126.77, 135.35

S-2-methyl-1-butylamine hydrochloride^[8], 163-167 °C; light brown powder from hexane; δ_{H} 0.71 (3H t J=8), 0.78 (3H d J=8), 1.02 (1H septet J=8), 1.22 (1H septet J=8), 1.55 (1H o J=8), 2.59-2.64 (1H m), 2.76-2.80 (1H m); δ_{C} 10.07, 15.75, 25.94, 32.48, 44.75

cadaverine dihydrochloride^[9], 249-256 °C; white powder from PrOH; δ_{H} 1.42 (2H p J=8), 1.69 (4H p J=8), 3.00 (4H t J=8); δ_{C} 22.75, 26.32, 39.33

tyramine hydrochloride^[10], 270-273 °C; white powder from EtOH; δ_{H} 2.75 (2H t J=8), 3.06 (2H t J=8), 6.73 (2H d J=8), 7.04 (2H d J=8); δ_{C} 31.95, 40.83, 115.90, 128.55, 130.32, 154.65

2-phenylethylamine hydrochloride^[11], 217-220 °C; white plates from PrOH; δ_{H} 2.84 (2H t J=8), 3.12 (2H t J=8), 7.17-7.28 (5H m); δ_{C} 32.85, 40.71, 127.46, 129.00, 129.18, 136.72

4-(2-aminoethyl)aniline dihydrochloride^[12], 303-306 °C; white powder from EtOH; δ_{H}

2.88 (2H t J=8), 3.12 (2H t J=8), 7.22 (2H d J=8), 7.29 (2H d J=8); δ_{C} 32.16, 40.19, 123.30,

128.82, 130.40, 137.72

2-(4-bromophenyl)ethanamine hydrochloride, δ_{H} 2.81 (2H t J=8), 3.11 (2H t J=8), 7.08 (2H d J=8), 7.40 (2H d J=8); δ_{C} 32.10, 40.21, 120.43, 130.65, 131.78, 135.61

2-(p-tolyl)ethanamine hydrochloride^[13], 219-221 °C; white plates from PrOH; δ_{H} 2.15

(3H, s), 2.78 (2H t $J=8$), 3.08 (2H t $J=8$), 7.06 (4H m); δ_{C} 19.98, 32.21, 40.56, 128.76, 129.52,

133.40, 137.35

2-(4-nitrophenyl)ethanamine hydrochloride^[14], 208-211 °C; brown crystals form EtOH;

δ_H 2.98 (2H t J=8), 3.18 (2H t J=8), 7.38 (2H d J=8), 8.07 (2H d J=8); δ_C 32.52, 39.81, 110.08,

123.96, 129.80, 144.61

4-(2-aminoethyl)-2-iodophenol hydrochloride^[15], 249-253 °C; light brown powder from

PrOH; δ_{H} 2.99 (2H t J=8), 3.13 (2H t J=8), 7.09 (1H m), 7.23 (2H m), 7.51 (1H m); δ_{C} 32.15,

29.26, 123.81, 128.09, 129.20, 131.07, 133.01, 135.66

4-(2-aminoethyl)-2,6-dibromophenol hydrochloride^[15], 206-208 °C; tan powder from

MeOH; δ_{H} 2.71 (2H t J=8), 3.03 (2H t J=8), 7.29 (2H s); δ_{C} 31.54, 40.55, 104.98, 111.42,

131.88, 132.90

cyclopentamine hydrochloride^[16], 198-201 °C; brown powder from BuOH; δ_H 1.53 (6H m), 1.89 (2H m), 3.49 (1H m); δ_C 23.45, 30.46, 52.05 (estimated 15% impurity)

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