

SUPPLEMENTARY MATERIAL TO

**Synthesis and spectral characterization of 1,2-bis(5-methyl/chloro-1H-benzimidazol-2-yl)ethanols and their Co(II), Pd(II) and Zn(II) complexes**

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*1,2-Bis(5-methyl-1H-benzimidazol-2-yl)ethanol (1):* Yield: 2.17 g (71%). Colorless solid. M.p.: 190 °C (decomp.). Combustion analysis for C<sub>18</sub>H<sub>18</sub>N<sub>4</sub>O: (Mw=306.36 g/mol): C 70.57, H 5.92, N 18.29; found: C 70.26, H 5.81, N 18.02. Mid- and far-IR (ATR): 3120m,br, 3033m,br, 2923m, 2860m, 2733m,br, 1631m, 1594w, 1537m, 1447s, 1409m, 1307m, 1279m, 1224m, 1089m, 1048m, 1020m, 856m, 794s, 597m, 430m, 410m, 374m, 253m, cm<sup>-1</sup>. Raman: 3059m, 2925m, 2861w, 1645w, 1589m, 1539m, 1442m, 1376w, 1276s, 1129w, 1021w, 944w, 882w, 759m, 597w, 439w, 300w, 200w, cm<sup>-1</sup>. <sup>1</sup>H-NMR (500 MHz, DMSO-d<sub>6</sub>, δ): 12.17 (s,br, 2H, NH+NH', exchangeable with D<sub>2</sub>O), 7.26 (s,br, 2H, H4+H7), 6.92 (s,br, 1H, H6), 6.13 (s,br, 1H, OH, exchangeable with D<sub>2</sub>O), 5.32 (s,br, 1H, -CH-OH), 3.33 (s,br, 2H, -CH<sub>2</sub>-; splits two broad singlets in after D<sub>2</sub>O: 3.49 s,br and 3.67 s,br), 2.36 (s, 3H, -CH<sub>3</sub>). <sup>13</sup>C-NMR (APT, 125 MHz, DMSO-d<sub>6</sub>, δ): Quaterner carbons: 157.0 (C2), 152.6 (C2'), 141.1 (C9+C9'), 138.2 (C8+C8'), 131.5 (C5+C5'); H-bonded carbons (CHs): 123.2, 122.4, 67.2 (C-OH), 36.7 (-CH<sub>2</sub>-), 22.0 (-CH<sub>3</sub>). Fluorescence spectra (EtOH, c = 1·10<sup>-4</sup> mol L<sup>-1</sup>) λ<sub>max</sub> / nm: 406m,br, 428m, 456sh. ESI-MS (m/z): 307.2 ([M+1]<sup>+</sup>, 100), 308.5 ([M+2]<sup>+</sup>, 32.2), 310.0 ([M+4]<sup>+</sup>, 7.5), 289.5 ([M-OH]-1]<sup>+</sup>, 10.4).

*1,2-Bis(5-chloro-1H-benzimidazol-2-yl)ethanol (2):* Yield: 2.05 g (59%). Colorless solid. M.p.: 212 °C (decomp.). Combustion analysis for C<sub>16</sub>H<sub>12</sub>Cl<sub>2</sub>N<sub>4</sub>O (Mw=347.20 g/mol): C 55.35, H 3.48, N 16.14; found: C 55.26, H 3.31, N 16.11. Mid- and far-IR (ATR): 3145m,br, 3046m,br, 2986w, 1623w, 1585w, 1542w, 1473m, 1444m, 1414m, 1300w, 1086s, 1024s, 927m, 848m, 803m, 599m, 561s, 537m, 475w, 423w, 390m, 272m, 175m, 132m, cm<sup>-1</sup>. Raman: 3085m, 2943m, 2900w, 1584m, 1539m, 1469w, 1291w, 1276w, 1056m, 998w, 960w, 886w, 805w, 705w, cm<sup>-1</sup>. <sup>1</sup>H-NMR (500 MHz, DMSO-d<sub>6</sub>, δ): 12.57 (s,br, 1H, NH', exchangeable with D<sub>2</sub>O), 12.50 (s,br,1H, NH, exchangeable with D<sub>2</sub>O), 7.56 (m,br, 1H, H7), 7.53 (s, 1H, H4), 7.14 (d,br, 1H, J = 8.3 Hz, H6), 6.25 (s, 1H, OH, exchangeable with D<sub>2</sub>O),

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32 5.37 (*dd*, 1H,  $J = 8.3, 4.9$  Hz,  $-\underline{\text{CH}}-\text{OH}$ ), 3.55 (*dd*, 2H,  $J = 14.9, 4.9$ ,  $-\text{CH}_2-$ ).  $^{13}\text{C}$ -NMR  
 33 (APT, 125 MHz, DMSO- $\text{d}_6$ ,  $\delta$ ): Quaterner carbons: 159.2 (C2), 154.6 (C2'), 144.7 (C9),  
 34 142.7 (C9'), 135.7 (C8), 133.8 (C8'), 126.9 (C5), 126.1 (C5'); H-bonded carbons (CHs):  
 35 122.7, 120.6, 118.8, 113.5, 112.9, 111.5, 67.0 (C–OH), 36.8 ( $-\text{CH}_2-$ ). Fluorescence spectra  
 36 (EtOH,  $c = 1 \cdot 10^{-4}$  mol L $^{-1}$ )  $\lambda_{\text{max}}$  / nm: 401m,br, 423m, 451sh. ESI-MS ( $m/z$ ): 347.3 ([M] $^{+}$ ,  
 37 100), 348.3 ([M+1] $^{+}$ , 16.7), 349.2 ([M+2] $^{+}$ , 61.7), 350.3 ([M+3] $^{+}$ , 11.7), 351.2 ([M+4] $^{+}$ , 11.4),  
 38 369.1 ([M+23(Na)-1] $^{+}$ , 17.1), 313.4 ([M-Cl+1] $^{+}$ , 6.8), 279.3 ([M-2Cl+1] $^{+}$ , 3.2).

39  $[\text{Co}(\mathbf{1})_2(\text{H}_2\text{O})]\text{Cl}_2 \cdot \text{H}_2\text{O}$  (**1a**): Yield: 0.188 g (93%). Purple-blue solid. M.p.: 253 °C  
 40 (decomp.). Combustion analysis for  $\text{C}_{36}\text{H}_{40}\text{Cl}_2\text{N}_8\text{O}_4\text{Co}$  (Mw=778.61 g/mol): C 55.53, H 5.18,  
 41 N 14.39; found: C 54.96, H 5.05, N 14.03.  $\Lambda_{\text{M}}$  (DMF, 25 °C): 86 S m $^2$  mol $^{-1}$ . Magnetic  
 42 moment,  $\mu_{\text{eff}}$ : 4.47  $\mu_{\text{B}}$ . Mid- and far-IR (ATR): 3112m,br, 3036m,br, 2918m, 1630m,br,  
 43 1597m,br, 1538m,br, 1455s, 1416m, 1320m, 1283m, 1224m, 1075m, 1056m, 864m, 802s,  
 44 597m, 478w, 432m, 429m, 413m, 372w, 122s, cm $^{-1}$ . Raman: 3055m, 2923m, 2865w, 1648w,  
 45 1594m, 1539s, 1460m, 1379w, 1283s, 1142w, 1081w, 942w, 763m, 506w, 451w, 242w,  
 46 175m, cm $^{-1}$ . Fluorescence spectra (EtOH,  $c = 1 \cdot 10^{-4}$  mol L $^{-1}$ )  $\lambda_{\text{max}}$  / nm: 405m,br, 428m,br,  
 47 456sh. ESI-MS ( $m/z$ ): 307.2 ([M $_{\text{L}}^{*}+1$ ] $^{+}$ , 100), 670.2 ([2L+Co-1] $^{+}$ , 26.9), 705.8  
 48 ([2L+Co+Cl-1] $^{+}$ , 16.3), 764.0 ([M-H $_2$ O+3] $^{+}$ , 5.3).

49  $[\text{Pd}(\mathbf{1})\text{Cl}]_2\text{Cl}_2 \cdot 2\text{H}_2\text{O}$  (**1b**): Yield: 0.180 g (71%). Slightly khaki solid. M.p.: >350 °C  
 50 (decomp.). Combustion analysis for  $\text{C}_{36}\text{H}_{40}\text{Cl}_4\text{N}_8\text{O}_4\text{Pd}_2$  (Mw=1003.41 g/mol): C 43.09, H  
 51 4.02, N 11.17; found: C 42.93, H 4.44, N 10.89.  $\Lambda_{\text{M}}$  (DMF, 25 °C): 123 S m $^2$  mol $^{-1}$ . Mid- and  
 52 far-IR (ATR): 3353m,br, 3303m,br, 3227s,br, 3087w, 2923m, 1662w, 1631m, 1600m,  
 53 1537m, 1469s, 1285m, 1250m, 1170m, 1075m, 1054m, 857m, 803s, 674m, 597m, 413m,  
 54 295m,br, 271s, 134s, cm $^{-1}$ . Raman: 3058m, 2926m, 1598m, 1544s, 1451m, 1381w, 1288s,  
 55 1230w, 1056w, 1002w, 956w, 890w, 762m, 650w, 465w, 213w, cm $^{-1}$ .  $^1\text{H}$ -NMR (500 MHz,  
 56 DMSO- $\text{d}_6$ ,  $\delta$ ): 13.47 (*s,br*, 2H, NH+NH', exchangeable with D $_2$ O), 8.73 (*s,br*, 1H, H7), 8.06  
 57 (*s,br*, 1H, H4), 7.24 (*s,br*, 1H, H6), 7.22 (*s,br*, 1H, OH, exchangeable with D $_2$ O), 6.77 (*s,br*,  
 58 1H,  $-\underline{\text{CH}}-\text{OH}$ ), 4.77 (*s,br*, 2H,  $-\text{CH}_2-$ ), 2.47 (*s*, 3H,  $-\text{CH}_3$ ).  $^{13}\text{C}$ -NMR (APT, 125 MHz,  
 59 DMSO- $\text{d}_6$ ,  $\delta$ ): Quaterner carbons: 155.4 (C2), 150.5 (C2'), 140.2 (C9), 138.3 (C9'), 134.1  
 60 (C8), 133.0 (C8'), 132.5 (C5'), 131.2 (C5); H-bonded carbons (CHs): 125.9, 125.1, 119.4,  
 61 112.7, 112.2, 64.8 (C–OH), 35.3 ( $-\text{CH}_2-$ ), 19.0 ( $-\text{CH}_3$ ). Fluorescence spectra (EtOH,  $c =$   
 62  $1 \cdot 10^{-4}$  mol L $^{-1}$ )  $\lambda_{\text{max}}$  / nm: 373w, 393w. ESI-MS ( $m/z$ ): 481.0 ([M/2-H $_2$ O-3] $^{+}$ , 100), 479.0  
 63 ([M/2-H $_2$ O-4] $^{+}$ , 82.6), 477.9 ([M/2-H $_2$ O-6] $^{+}$ , 69.1), 482.9 ([M/2-H $_2$ O-1] $^{+}$ , 48.7), 480.0

64  $[(M/2-H_2O)-3]^+$ , 42.1), 476.8  $[(M/2-H_2O)-5]^+$ , 21.6), 481.9  $[(M/2-H_2O)-2]^+$ , 19.5), 484.9  
65  $[(M/2-H_2O)+1]^+$ , 12.1), 307.1 ( $M_L^*$ , 6.1), 717.1  $[(M-PdCl_2)]^+$ , 11.25), 964.02  $[(M-2H_2O)-3]^+$ ,  
66 6.21).

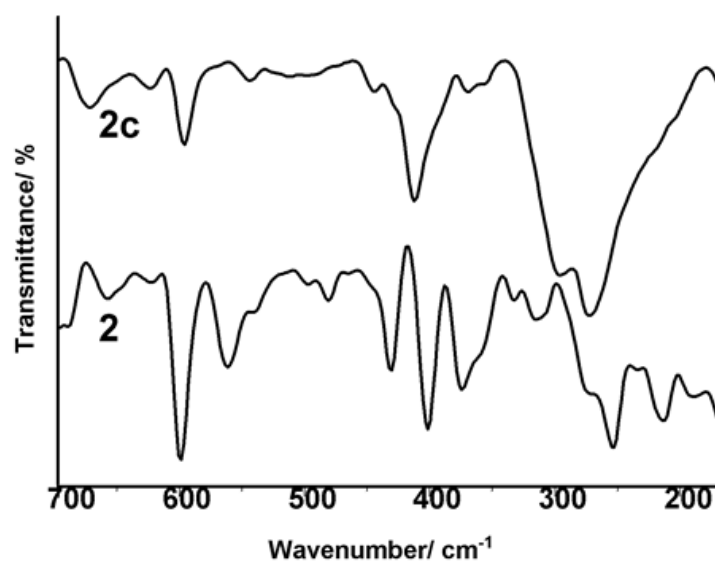
67  $[Zn(1)Cl_2] \cdot 2H_2O$  (**1c**): Yield: 0.235 g (88%). Colorless solid. M.p.: 309 °C (decomp.).  
68 Combustion analysis for  $C_{18}H_{22}Cl_2N_4O_3Zn$  (Mw=478.71 g/mol): C 45.16, H 4.63, N 11.70;  
69 found: C 44.63, H 3.76, N 11.13.  $\Lambda_M$  (DMF, 25 °C): 9.0 S m<sup>2</sup> mol<sup>-1</sup>. Mid- and far-IR (ATR):  
70 3298m,br, 3218m,br, 3059m,br, 2921m, 1627m, 1597m, 1537m, 1463s, 1416m, 1303m,  
71 1228m, 1075m, 1046s, 861m, 798s, 669m, 596m, 550m, 421m, 320s,br, 178m, 142m, 114m,  
72 cm<sup>-1</sup>. Raman: 3065m, 2960w, 2922s, 2867w, 1629w, 1598m, 1532s, 1470w, 1424w, 1377w,  
73 1293s, 1231w, 1138w, 1064w, 1018w, 948w, 871w, 770m, 325m, 290w, 182m, cm<sup>-1</sup>. <sup>1</sup>H-  
74 NMR (500 MHz, DMSO-d<sub>6</sub>,  $\delta$ ): 13.43 (s,br, 2H, NH+NH', exchangeable with D<sub>2</sub>O), 8.08  
75 (s,br, 1H, H7), 7.44 (s,br, 1H, H4), 7.21 (dd, 1H,  $J = 7.0, 4.2$ , H6), 6.93 (s, 1H, OH,  
76 exchangeable with D<sub>2</sub>O), 5.51 (d, 1H,  $J = 8.3$ , -CH-OH), 3.82 (dd, 1H,  $J_1 = 15.6, J_2 = 9.3$ ,  
77 -CH<sub>2</sub>-), 3.64 (d, 1H,  $J = 15.6, 3.82$  Hz, -CH<sub>2</sub>-), 2.46 (s, 3H, -CH<sub>3</sub>). <sup>13</sup>C-NMR (APT, 125  
78 MHz, DMSO-d<sub>6</sub>,  $\delta$ ): Quaterner carbons: 158.2 (C2), 152.8 (C2'), 140.7 (C9), 138.3 (C9'),  
79 134.1 (C8), 133.1 (C8'), 131.0 (C5); H-bonded carbons (CHs): 126.3, 125.2, 118.5, 112.7,  
80 64.7 (C-OH), 35.5 (-CH<sub>2</sub>-), 22.0 (-CH<sub>3</sub>). Fluorescence spectra (EtOH,  $c = 1 \cdot 10^{-4}$  mol L<sup>-1</sup>)  
81  $\lambda_{max}$  / nm: 375w, 421sh, 442m,br. ESI-MS ( $m/z$ ): 307.3  $[(M_L^*+1)]^+$ , 100), 405.3  $[(L^*+ZnCl)-$   
82  $2]^+$ , 99.6), 848.9  $[(2L+2Zn+3Cl)-1]^+$ , 66.3), 409.3  $[(L+ZnCl)+2]^+$ , 65.0), 713.2  
83  $[(2L+ZnCl)]^+$ , 51.3), 813.1  $[(2L+2Zn+2Cl)-1]^+$ , 25.0), 441.3  $[(M-(2H_2O)-1)]^+$ , 8.9).

84  $[Co(2)_2]Cl_2 \cdot 2H_2O$  (**2a**): Yield: 0.186 g (85%). Purple solid. M.p.: 222 °C (decomp.).  
85 Combustion analysis for  $C_{32}H_{28}Cl_6N_8O_4Co$  (Mw=860.30 g/mol): C 44.68, H 3.28, N 13.03;  
86 found: C 44.09, H 3.43, N 12.82.  $\Lambda_M$  (DMF, 25 °C): 105 S m<sup>2</sup> mol<sup>-1</sup>. Magnetic moment,  $\mu_{eff}$ :  
87 4.05  $\mu_B$ . Mid- and far-IR (ATR): 3102m,br, 3036m,br, 2891m, 1624m, 1590m, 1531m,  
88 1446s, 1409m, 1320m, 1280m, 1215m, 1072m, 1049s, 931m, 855m, 801s, 709m, 597m,  
89 541m, 476m, 423m, 367m, 288m, 258m, 198m, 122m, cm<sup>-1</sup>. Raman: 3071m, 2922m, 1590m,  
90 1530s, 1450m, 1427m, 1334s, 1276s, 1231m, 1064m, 708w, 220w, 150m, cm<sup>-1</sup>. Fluorescence  
91 spectra (EtOH,  $c = 1 \cdot 10^{-4}$  mol L<sup>-1</sup>)  $\lambda_{max}$  / nm: 399m,br, 424m,br, 453sh. ESI-MS ( $m/z$ ): 347.3  
92  $[(M_L^*+1)]^+$ , 100), 349.2  $[(M_L+2)]^+$ , 64.0), 381.1  $[(M_L+23+1)]^+$ , 38.3), 408.1  $[(L+Co)+2]^+$ ,  
93 16.1), 752.0  $[(2L+Co)-1]^+$ , 4.8), 476.0  $[(L+CoCl_2)-1]^+$ , 4.2).

94  $[Pd(2)Cl]_2Cl_2 \cdot 2H_2O$  (**2b**): Yield: 0.219 g (89%). Soil colored solid. M.p.: >350 °C (decomp.).  
95 Combustion analysis for  $C_{32}H_{28}Cl_8N_8O_4Pd_2$  (Mw=1085.08 g/mol): C 35.42, H 2.60, N 10.33;

96 found: C 35.13, H 2.86, N 9.97.  $\Lambda_M$  (DMF, 25 °C): 122 S m<sup>2</sup> mol<sup>-1</sup>. Mid- and far-IR (ATR):  
 97 3393m,br, 3189m,br, 3053m,br, 1624m, 1590m, 1534m, 1448m, 1406m, 1307m, 1247m,  
 98 1184m, 1082m, 1046m, 947m, 854m, 805s, 713m, 597m, 470m, 415m, 345m, 296s, 223s,br,  
 99 129s,br., cm<sup>-1</sup> Raman: 3078w, 2931w, 1590w, 1526m, 1457w, 1422w, 1282w, 1228w,  
 100 1073w, 987w, 875w, 790w, 712w, 506w, 386w, 234w, cm<sup>-1</sup>. <sup>1</sup>H-NMR (500 MHz, DMSO-d<sub>6</sub>,  
 101  $\delta$ ): 13.77 (*d,br*, 1H, *J* = 11.2, NH', exchangeable with D<sub>2</sub>O), 13.71 (*d,br*, 1H, *J* = 9.8, NH,  
 102 exchangeable with D<sub>2</sub>O), 8.19 (*m*, 1H, H7), 7.70 (*m*, 1H, H4), 7.49 (*m*, 1H, H6), 7.17 (*s,br*,  
 103 1H, OH, exchangeable with D<sub>2</sub>O), 6.65 (*s*, 1H, -CH-OH), 4.73 (*d*, 1H, *J*=4.9, -CH<sub>2</sub>-), 4.69  
 104 (*t*, 1H, *J*<sub>1</sub> = 4.9, *J*<sub>2</sub> = 2.4, -CH<sub>2</sub>-). <sup>13</sup>C-NMR (APT, 125 MHz, DMSO-d<sub>6</sub>,  $\delta$ ): Quaterner  
 105 carbons: 157.4 (C2), 152.8 (C2'), 140.9 (C9), 138.8 (C9'), 133.8 (C8), 132.0 (C8'), 129.0  
 106 (C5), 127.8 (C5'); H-bonded carbons (CHs): 124.7, 123.7, 121.4, 119.4, 114.8, 112.8, 64.6  
 107 (C-OH), 35.1 (-CH<sub>2</sub>-). Fluorescence spectra (EtOH, *c* = 1·10<sup>-4</sup> mol L<sup>-1</sup>)  $\lambda_{\max}$  / nm: 375w,br,  
 108 393m, 461m,br. ESI-MS (*m/z*): 520.9 ([*(M/2-H<sub>2</sub>O*)-4]<sup>+</sup>, 100), 519.9 ([*(M/2-H<sub>2</sub>O*)-5]<sup>+</sup>, 62.8),  
 109 522.9 ([*(M/2-H<sub>2</sub>O*)-2]<sup>+</sup>, 62.7), 518.9 ([*(M/2-H<sub>2</sub>O*)-6]<sup>+</sup>, 60.1), 522.1 ([*(M/2-H<sub>2</sub>O*)-3]<sup>+</sup>, 40.5),  
 110 524.9 ([*(M/2-H<sub>2</sub>O*)]<sup>+</sup>, 28.2), 508.5 ([*(M/2-H<sub>2</sub>O*-OH)]<sup>+</sup>, 21.6), 712.9 (2L\*+H<sub>2</sub>O, 28), 347.3  
 111 (M<sub>L</sub>\*, 8.2), 1046.5 ([*M-2H<sub>2</sub>O*-3]<sup>+</sup>).

112 [*Zn(2)Cl<sub>2</sub>*] (**2c**): Yield: 0.204 g (94%). Slightly yellow solid. M.p.: >350 °C (decomp.).  
 113 Combustion analysis for C<sub>16</sub>H<sub>12</sub>Cl<sub>4</sub>N<sub>4</sub>OZn (M<sub>w</sub>=483.51 g/mol): C 39.74, H 2.50, N 11.59;  
 114 found: C 40.33, H 2.65, N 11.70.  $\Lambda_M$  (DMF, 25 °C): 6.0 S m<sup>2</sup> mol<sup>-1</sup>. Mid- and far-IR (ATR):  
 115 3189m,br, 3109m,br, 3043m,br, 2897m, 1624m, 1594m, 1535m, 1449s, 1429m, 1300m,  
 116 1223m, 1194m, 1046s, 931m, 851m, 801s, 716m, 597m, 419m, 319m,br, 254m, 205m, 173m,  
 117 133m, 107s, cm<sup>-1</sup>. Raman: 3076m, 2922m, 1629w, 1590m, 1536m, 1428m, 1355w, 1285m,  
 118 1246w, 1130w, 1067m, 940w, 716m, 325m, 299m, 167w, cm<sup>-1</sup>. <sup>1</sup>H-NMR (500 MHz, DMSO-  
 119 d<sub>6</sub>,  $\delta$ ): 13.68 (*s,br*, 2H, NH+NH', exchangeable with D<sub>2</sub>O), 7.90 (*s,br*, 2H, H4+H7), 7.41 (*m*,  
 120 1H, H6), 6.94 (*s*, 1H, OH, exchangeable with D<sub>2</sub>O), 5.55 (*d*, 1H, *J* = 7.3, -CH-OH), 3.85 (*dd*,  
 121 2H, *J*<sub>1</sub> = 16.0, *J*<sub>2</sub> = 9.0, -CH<sub>2</sub>-), 3.66 (*d*, 2H, *J* = 14.6, -CH<sub>2</sub>-). <sup>13</sup>C-NMR (APT, 125 MHz,  
 122 DMSO-d<sub>6</sub>,  $\delta$ ): Quaterner carbons: 159.9 (C2), 154.8 (C2'), 137.7 (C9+C9'), 133.5 (C8+C8'),  
 123 128.4 (C5), 124.5 (C5'); H-bonded carbons (CHs): 124.3, 122.3, 64.8 (C-OH), 35.4,(-CH<sub>2</sub>-).  
 124 Fluorescence spectra (EtOH, *c* = 1·10<sup>-4</sup> mol L<sup>-1</sup>)  $\lambda_{\max}$  / nm: 394w,br, 425w,br, 453sh. ESI-MS  
 125 (*m/z*): 815.1 ([*2M-ZnCl<sub>2</sub>*-OH]<sup>+</sup>, 100), 837.8 ([*(2M-ZnCl<sub>2</sub>*-OH)+Na]<sup>+</sup>, 44), 723.9  
 126 ([*(2L\*+Na)+6*]<sup>+</sup>, 42.2), 827.1 ([*2M-ZnCl<sub>2</sub>*-4]<sup>+</sup>, 30.7), 714.2 ([*(2L+Na)*-3]<sup>+</sup>, 12.7), 347.7  
 127 ([*M<sub>L</sub>*]<sup>+</sup>, 16.9), 477.8 ([*M-6*]<sup>+</sup>, 11.1). (\*L: ligand).



**Figure S-1.** Far IR spectra of **2** and  $[\text{Zn}(\text{2})\text{Cl}_2]$  (**2c**) at the 100 – 700  $\text{cm}^{-1}$  range.

**Table S-1.** TGA data of the complexes (thermal decomposition)

| Temperature<br>(°C) →  | 100           | 150 | 200 | 250 | 300  | 350  | 400  | 450  | 500  | 550  | 600  | 650  | 700  |
|------------------------|---------------|-----|-----|-----|------|------|------|------|------|------|------|------|------|
| Complex ↓              | Mass loss (%) |     |     |     |      |      |      |      |      |      |      |      |      |
| <b>1a</b>              | 2.9           | 5.0 | 5.3 | 8.4 | 11.1 | 12.8 | 14.5 | 17.6 | 34.6 | 63.2 | 85.3 | 86.2 | 86.1 |
| <b>1b</b>              | 2.8           | 4.2 | 4.9 | 5.6 | 6.8  | 8.2  | 10.9 | 56.1 | 71.8 | 73.1 | 74.6 | 75.1 | 75.0 |
| <b>1c</b> <sup>1</sup> | 6.5           | 6.8 | 7.0 | 7.4 | 8.3  | 9.6  | 10.5 | 14.1 | 16.4 | 20.6 | 30.1 | 49.4 | 80.1 |
| <b>2a</b>              | 3.4           | 4.9 | 5.3 | 8.3 | 10.4 | 15.5 | 19.2 | 23.6 | 28.4 | 36.2 | 75.7 | 86.5 | 90.2 |
| <b>2b</b>              | 3.9           | 5.3 | 5.6 | 6.0 | 8.4  | 13.8 | 18.3 | 26.1 | 38.0 | 78.2 | 78.2 | 78.3 | 78.3 |
| <b>2c</b>              | 0.8           | 1.1 | 1.5 | 1.9 | 4.4  | 8.0  | 12.7 | 18.3 | 37.6 | 55.6 | 71.3 | 85.7 | 86.1 |

<sup>1</sup>, 750°C: 85.1%.