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SUPPLEMENTARY MATERIAL TO

New complexes of Co(II), Ni(II) and Cu(II) with the Schiff base 2,2′-[(3,3′-dimethyl[1,1′-biphenyl]-4,4′-diylbis-(nitrilomethylidyne)]bis[6-methoxyphenol]

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PHYSICAL, ANALYTIC AND SPECTRAL DATA FOR THE LIGAND

2,2′-[(3,3′-dimethyl[1,1′-biphenyl]-4,4′-diylbis(nitrilomethylidyne)]bis[6--methoxyphenol] (H_2L). Reddish orange; Yield: 72 %; m.p.: 219.5 °C; Anal. Calcd. for $C_{30}H_{28}N_2O_4$: C, 74.98; H, 5.87; N, 5.82 %. Found: C, 74.44; H, 5.41; N, 5.89 %; IR (KBr, cm^{-1}): 3439 (O–H), 1615 (C=N), 1253 (C–O); ^{1}H-NMR (300 MHz, DMSO-d_6, δ / ppm): 8.96 (2H, *s*, –CH=N), 7.70 (2H, *d*, J = 2.2 Hz, aromatic), 7.66 (2H, *dd*, aromatic, J = 8.3 Hz), 7.48 (2H, *d*, aromatic, J = 8.3 Hz), 7.26 (2H, *dd*, J = 7.8 Hz, aromatic), 7.15 (2H, *dd*, J = 7.8 Hz, aromatic), 6.93 (2H, *t*, J = 7.8 Hz, aromatic,), 3.83 (6H, *s*, OCH_3), 2.42 (6H, *s*, CH_3); ^{13}C-NMR (75 MHz, DMSO-d_6, δ / ppm): 162.87 (C-1, C-1′), 119.36 (C-2, C-2′), 145.80 (C-3, C-3′), 148.00 (C-4, C-4′), 115.58 (C-5, C-5′), 118.65 (C-6, C-6′), 124.02 (C-7, C-7′), 150.90 (C-9, C-9′), 132.29 (C-10, C-10′), 132.15 (C-11, C-11′), 137.94 (C-12, C-12′), 128.67 (C-13, C-13′), 125.24 (C-14, C-14′), 18.03 (CH_3), 55.91 (OCH_3); UV–Vis (bulk, λ_{max} / cm^{-1}): 42,500, 25,000, 19,800.

PHYSICAL, ANALYTIC AND SPECTRAL DATA FOR THE COMPLEXES **1**–**7**

*[Co(HL)Cl(H_2O)] (**1**)*. Green; Yield: 65 %; m.p.: 310 °C; Anal. Calcd. for $C_{30}H_{29}Cl\ CoN_2O_5$: C, 60.08; H, 4.93; Co, 9.95; N, 4.73 %. Found: C, 60.55; H, 4.92; Co, 9.69; N, 4.95 %; FTIR (KBR, cm^{-1}): 3648 (O–H), 1636 (C=N), 1605 (C=N), 1243 (C–O), 570 (Co–O), 423 (Co–N); UV–Vis (bulk, λ_{max} / cm^{-1}): 25,970, 15,380, 8,130, 7,220; Λ_M (acetone, 10^{-3} M, Ω^{-1} cm^2 mol^{-1}): 10.4.

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*[$Co_2L(H_2O)_4$](ClO_4)$_2$ (**2**)*. Green; Yield: 60 %; Anal. Calcd. for $C_{30}H_{34}Cl_2Co_2N_2O_{16}$: C, 41.54; H, 3.95; Co, 13.58; N, 3.22 %. Found: C, 41.78; H, 4.34; Co, 13.42; N, 3.56 %; FTIR (KBr, cm^{-1}): 3444 (O–H), 1608 (C=N), 1245 (C–O), 1102, (anion), 623 (anion), 570 (Co–O), 446 (Co–N); UV-Vis (bulk, λ_{max} / cm^{-1}): 25,970, 17,240, 13,700, 8,700, 7,170; Λ_M (acetone, 10^{-3} M, Ω^{-1} cm^2 mol^{-1}): 105.

*[$Co_2L(CH_3COO)_2$] (**3**)*. Greenish brown; Yield: 62 %; m.p.: >330 °C; Anal. Calcd. for $C_{34}H_{32}Co_2N_2O_8$: C, 57.15; H, 4.51; Co, 16.49; N, 3.92 %. Found: C, 56.83; H, 4.64; Co, 16.74; N, 4.12 %; FTIR (KBr, cm^{-1}): 3421 (O–H), 1606 (C=N), 1541 (anion), 1434 (anion), 1243 (C–O), 550 (Co–O), 422 (Co–N); UV–Vis (bulk, λ_{max} / cm^{-1}): 20,000, 18,520, 10,580, 7,200; Λ_M (EtOH, 10^{-3} M, Ω^{-1} cm^2 mol^{-1}): 18.1.

*[$Ni_2L(CH_3COO)_2$] (**4**)*. Brown; Yield: 56 %; m.p.: >330 °C; Anal. Calcd. for $C_{34}H_{32}N_2Ni_2O_8$: C, 57.19; H, 4.51; N, 3.92; Ni, 16.44 %. Found: C, 56.83; H, 4.64; N, 4.12 4.62; Ni, 16.74 %; FTIR (KBr, cm^{-1}): 1609 C=N), 1547 (anion), 1434 (anion), 1237 (C–O), 537 (Ni–O), 421 (Ni–N); UV–Vis (bulk, λ_{max} / cm^{-1}): 35,710, 19,230, 15,750; Λ_M (acetone, 10^{-3} M, Ω^{-1} cm^2 mol^{-1}): 2.8.

*[Cu(HL)Cl(H_2O)] (**5**)*. Dark brown; Yield: 71 %; m.p.: 297 °C; Anal. Calcd. for $C_{30}H_{29}ClCuN_2O_5$: C, 60.39; H, 4.89; Cu, 10.65; N, 4.69 %. Found: C, 60.75 60.75; H, 4.62; Cu, 9.87 9.87; N, 4.15 %; FTIR (KBr, cm^{-1}): 3498 (O–H), 1618 (C=N), 1594 (C=N), 1242 (C–O), 578 (Cu–O), 435 (Cu–N); UV–Vis (bulk, λ_{max} / cm^{-1}): 25,64, 12,660; Λ_M (DMF, 10^{-3} M, Ω^{-1} cm^2 mol^{-1}): 10.2.

*[$Cu_2L(H_2O)_4$](NO_3)$_2$ (**6**)*: Light brown; Yield: 53 %; m.p.>330 °C; Anal. Calcd. for $C_{30}H_{34}Cu_2N_4O_{14}$: C, 44.94; H, 4.27; Cu, 15.85; N, 6.98 %. Found: C, 44.72; H, 4.23; Cu, 15.43; N, 6.36 %; FTIR (KBr, cm^{-1}): 3441 1610 (C=N), 1384 (anion), 1243 (C–O), 578 (Cu–O), 466 (Cu–N); UV–Vis (bulk, λ_{max} / cm^{-1}): 25,640, 12,660, 10,200; Λ_M (DMF, 10^{-3} M, Ω^{-1} cm^2 mol^{-1}): 123.0.

[$Cu_2L(CH_3COO)_2$] (7). Light brown; Yield: 59 %; m.p.: >330 °C; Anal. Calcd. for $C_{34}H_{32}Cu_2N_2O_8$: C, 56.42; H, 4.45; Cu, 17.56; N, 3.87 %. Found: C, 56.88; H, 4.72; Cu, 16.98; N, 4.11 %; FTIR (KBr, cm^{-1}): 3443 (O–H), 1605 (C=N), 1543 (anion), 1442 (anion), 1242 (C–O), 596 (Cu–O), 437 (Cu–N); UV–Vis (bulk, λ_{max} / cm^{-1}): 25,970, 13,245, 11,695.