



SUPPLEMENTARY MATERIAL TO  
**Schiff bases of 1,5-diarylpent-4-ene-1,3-diones and their metal complexes: Synthesis, characterization and fluorescent studies**

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*Synthesized Schiff bases (H<sub>2</sub>L)*

**H<sub>2</sub>L<sup>1</sup>** (C<sub>29</sub>H<sub>24</sub>N<sub>2</sub>O<sub>2</sub>). IR (cm<sup>-1</sup>): 1610s (C=N), 1580s (C=C), 1280m (C–N), 1540m (N–H); <sup>1</sup>H-NMR (δ / ppm): 8.62 (1H, NH), 10.10 (1H, phenolic OH), 9.50 (1H, methine), 5.88 (1H, alkenyl), 8.06 (1H), 7.90 (1H); mass spectrum (m/z): 433, 357, 321, 255, 181, 103; UV (λ<sub>max</sub> / nm): 364, 265.

**H<sub>2</sub>L<sup>2</sup>** (C<sub>30</sub>H<sub>26</sub>N<sub>2</sub>O<sub>3</sub>). IR (cm<sup>-1</sup>): 1614s (C=N), 1586s (C=C), 1278m (C–N), 1542m (N–H); <sup>1</sup>H-NMR (δ / ppm): 8.60 (1H, NH), 10.74 (1H, phenolic OH), 9.52 (1H, methine), 5.81 (1H, alkenyl) 8.04 (1H) 7.86 (1H), 3.92 (3H, OCH<sub>3</sub>); mass spectrum (m/z): 462, 385, 355, 329, 252, 133, 107; UV (λ<sub>max</sub> / nm): 366, 258.

**H<sub>2</sub>L<sup>3</sup>** (C<sub>31</sub>H<sub>26</sub>N<sub>2</sub>O<sub>2</sub>). IR (cm<sup>-1</sup>): 1610s (C=N), 1578s (C=C), 1280m (C–N), 1544m (N–H); <sup>1</sup>H-NMR (δ / ppm): 8.58 (1H, NH), 10.66 (1H, phenolic OH), 9.60 (1H, methine), 5.78 (1H, alkenyl), 7.98–8.10 (4H); mass spectrum (m/z): 433, 355, 329, 278, 175, 129, 103; UV (λ<sub>max</sub> / nm): 360, 262.

**H<sub>2</sub>L<sup>4</sup>** (C<sub>30</sub>H<sub>26</sub>N<sub>2</sub>O<sub>4</sub>). IR (cm<sup>-1</sup>): 1608s (C=N), 1576s (C=C), 1276m (C–N), 1540m (N–H); <sup>1</sup>H-NMR (δ / ppm): 8.62 (1H, NH), 10.72 (1H, phenolic OH), 10.15 (1H, phenolic OH), 9.56 (1H, methine) 5.82 (1H, alkenyl), 8.06 (1H) 7.90 (1H), 3.88 (3H, OCH<sub>3</sub>); mass spectrum (m/z): 478, 355, 401, 329, 252, 149, 123; UV (λ<sub>max</sub> / nm): 358, 265.

*Synthesized metal complexes*

**CuL<sup>1</sup>** (C<sub>29</sub>H<sub>22</sub>CuN<sub>2</sub>O<sub>2</sub>). IR (cm<sup>-1</sup>): 1552s (C=N), 1582s (C=C), 1260m (C–N), 1536m (N–H), 580m & 520m (M–N), 472m & 423m (M–O); mass spectrum (m/z): 495, 493, 432, 418, 416, 392, 390, 355, 341, 339, 315, 313, 252; UV (λ<sub>max</sub> / nm): 384, 275.

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**NiL<sup>1</sup>(H<sub>2</sub>O)<sub>2</sub>** (C<sub>29</sub>H<sub>26</sub>N<sub>2</sub>NiO<sub>4</sub>). IR (cm<sup>-1</sup>): 1550s (C=N), 1576s (C=C), 1256m (C-N), 1538m (N-H), 580m & 528m (M-N), 470m & 420m (M-O); UV (λ<sub>max</sub> / nm): 390, 278.

**CoL<sup>1</sup>(H<sub>2</sub>O)<sub>2</sub>** (C<sub>29</sub>H<sub>26</sub>CoN<sub>2</sub>O<sub>4</sub>). IR (cm<sup>-1</sup>): 1558s (C=N), 1578s (C=C), 1258m (C-N), 1539m (N-H), 577m & 520m (M-N), 467m & 425m (M-O); UV (λ<sub>max</sub> / nm): 386, 272.

**ZnL<sup>1</sup>** (C<sub>29</sub>H<sub>22</sub>N<sub>2</sub>O<sub>2</sub>Zn). IR (cm<sup>-1</sup>): 1556s (C=N), 1580s (C=C), 1258m (C-N), 1540m (N-H), 576m and 522m (M-N), 468m and 422m (M-O); <sup>1</sup>H-NMR (δ / ppm): 8.60 (1H, NH), 6.34 (1H, methine) 8.13 (1H, alkenyl), 7.98 (1H, alkenyl); UV (λ<sub>max</sub> / nm): 380, 268.

**CdL<sup>1</sup>** (C<sub>29</sub>H<sub>22</sub>CdN<sub>2</sub>O<sub>2</sub>). IR (cm<sup>-1</sup>): 1558s (C=N), 1584s (C=C), 1262m (C-N), 1538m (N-H), 574m & 520m (M-N), 472m & 425m (M-O); UV (λ<sub>max</sub> / nm): 392, 272.

**HgL<sup>1</sup>** (C<sub>29</sub>H<sub>22</sub>HgN<sub>2</sub>O<sub>2</sub>). IR (cm<sup>-1</sup>): 1560s (C=N), 1582s (C=C), 1266m (C-N), 1542m (N-H), 578m & 526m (M-N), 474m & 426m (M-O); UV (λ<sub>max</sub> / nm): 392, 272.

**CuL<sup>2</sup>** (C<sub>30</sub>H<sub>24</sub>CuN<sub>2</sub>O<sub>3</sub>). IR (cm<sup>-1</sup>): 1550s (C=N), 1580s (C=C), 1266m (C-N), 1540m (N-H), 580m & 522m (M-N), 470m & 424m (M-O); mass spectrum (m/z): 525, 523, 462, 448, 446, 418, 416, 392, 390, 385, 315, 313, 252; UV (λ<sub>max</sub> / nm): 396, 278.

**NiL<sup>2</sup>(H<sub>2</sub>O)<sub>2</sub>** (C<sub>30</sub>H<sub>28</sub>N<sub>2</sub>NiO<sub>5</sub>). IR (cm<sup>-1</sup>): 1550s (C=N), 1582s (C=C), 1258m (C-N), 1536m (N-H), 580m & 528m (M-N), 467m & 420m (M-O); UV (λ<sub>max</sub> / nm): 390, 268.

**CoL<sup>2</sup>(H<sub>2</sub>O)<sub>2</sub>** (C<sub>30</sub>H<sub>28</sub>CoN<sub>2</sub>O<sub>5</sub>). IR (cm<sup>-1</sup>): 1552s (C=N), 1584s (C=C), 1259m (C-N), 1534m (N-H), 580m & 523m (M-N), 469m & 427m (M-O); UV (λ<sub>max</sub> / nm): 396, 278.

**ZnL<sup>2</sup>** (C<sub>30</sub>H<sub>24</sub>N<sub>2</sub>O<sub>3</sub>Zn). IR (cm<sup>-1</sup>): 1547s (C=N), 1580s (C=C), 1260m (C-N), 1540m (N-H), 574m & 520m (M-N), 472m & 423m (M-O); <sup>1</sup>H-NMR (δ / ppm): 8.59 (1H, NH), 6.26 (1H, methine), 8.10 (1H, alkenyl) 7.92 (1H, alkenyl), 3.92 (3H, OCH<sub>3</sub>); UV (λ<sub>max</sub> / nm): 386, 272.

**CdL<sup>2</sup>** (C<sub>30</sub>H<sub>24</sub>CdN<sub>2</sub>O<sub>3</sub>). IR (cm<sup>-1</sup>): 1552s (C=N), 1576s (C=C), 1262m (C-N), 1542m (N-H), 580m & 522m (M-N), 474m & 426m (M-O); UV (λ<sub>max</sub> / nm): 392, 274.

**HgL<sup>2</sup>** (C<sub>30</sub>H<sub>24</sub>HgN<sub>2</sub>O<sub>3</sub>): IR (cm<sup>-1</sup>): 1553s (C=N), 1578s (C=C), 1260m (C-N), 1538m (N-H), 582m & 520m (M-N), 462m & 420m (M-O), UV (λ<sub>max</sub> / nm): 390, 269.

**CuL<sup>3</sup>** (C<sub>31</sub>H<sub>24</sub>CuN<sub>2</sub>O<sub>2</sub>). IR (cm<sup>-1</sup>): 1558s (C=N), 1578s (C=C), 1260m (C-N), 1540m (N-H), 580m & 520m (M-N), 472m & 420m (M-O); mass spectrum (m/z): 521, 519, 444, 442, 433, 418, 416, 392, 390, 355, 341, 339, 329, 278, 175, 103; UV (λ<sub>max</sub> / nm): 388, 272.

**NiL<sup>3</sup>(H<sub>2</sub>O)<sub>2</sub>** (C<sub>31</sub>H<sub>28</sub>N<sub>2</sub>NiO<sub>4</sub>). IR (cm<sup>-1</sup>): 1543s (C=N), 1580s (C=C), 1256m (C-N), 1540m (N-H), 578m & 522m (M-N), 462m & 423m (M-O); UV (λ<sub>max</sub> / nm): 390, 282.

**CoL<sup>3</sup>(H<sub>2</sub>O)<sub>2</sub>** (C<sub>31</sub>H<sub>28</sub>CoN<sub>2</sub>O<sub>4</sub>). IR (cm<sup>-1</sup>): 1549s (C=N), 1589s (C=C), 1258m (C-N), 1545m (N-H), 576m & 523m (M-N), 465m & 427m (M-O); UV (λ<sub>max</sub> / nm): 392, 280.

**ZnL<sup>3</sup>** (C<sub>31</sub>H<sub>24</sub>N<sub>2</sub>O<sub>2</sub>Zn). IR (cm<sup>-1</sup>): 1551s (C=N), 1577s (C=C), 1263m (C-N), 1538m (N-H), 576m & 526m (M-N), 482m & 422m (M-O); <sup>1</sup>H-NMR (δ / ppm): 8.60 (1H, NH), 6.26 (1H, methine), 8.06–8.22 (4H, alkenyl); UV (λ<sub>max</sub> / nm): 394, 272.

**CdL<sup>3</sup>** (C<sub>31</sub>H<sub>24</sub>CdN<sub>2</sub>O<sub>2</sub>). IR (cm<sup>-1</sup>): 1550s (C=N), 1575s (C=C), 1265m (C-N), 1543m (N-H), 580m & 522m (M-N), 470m & 423m (M-O); UV (λ<sub>max</sub> / nm): 396, 287.

**HgL<sup>3</sup>** (C<sub>31</sub>H<sub>24</sub>HgN<sub>2</sub>O<sub>2</sub>). IR (cm<sup>-1</sup>): 1563s (C=N), 1580s (C=C), 1259m (C-N), 1536m (N-H), 572m & 526m (M-N), 472m & 426m (M-O); UV (λ<sub>max</sub> / nm): 390, 280.

**CuL<sup>4</sup>** (C<sub>30</sub>H<sub>24</sub>CuN<sub>2</sub>O<sub>4</sub>). IR (cm<sup>-1</sup>): 1553s (C=N), 1576s (C=C), 1256m (C-N), 1534m (N-H), 579m & 520m (M-N), 472m & 423m (M-O); mass spectrum (m/z): 480, 478, 403, 401, 357, 355, 331, 329, 254, 252, 478, 355, 123; UV (λ<sub>max</sub> / nm): 389, 277.

**NiL<sup>4</sup>(H<sub>2</sub>O)<sub>2</sub>** (C<sub>30</sub>H<sub>28</sub>N<sub>2</sub>NiO<sub>6</sub>). IR (cm<sup>-1</sup>): 1550s (C=N), 1578s (C=C), 1250m (C-N), 1540m (N-H), 580m & 522m (M-N), 470m & 426m (M-O); UV (λ<sub>max</sub> / nm): 394, 285.

**CoL<sup>4</sup>(H<sub>2</sub>O)<sub>2</sub>** (C<sub>30</sub>H<sub>28</sub>CoN<sub>2</sub>O<sub>6</sub>). IR (cm<sup>-1</sup>): 1556s (C=N), 1576s (C=C), 1256m (C-N), 1544m (N-H), 570m & 528m (M-N), 460m & 427m (M-O); UV (λ<sub>max</sub> / nm): 396, 280.

**ZnL<sup>4</sup><sub>2</sub>** (C<sub>30</sub>H<sub>24</sub>N<sub>2</sub>O<sub>4</sub>Zn). UV, IR (cm<sup>-1</sup>): 1560s (C=N), 1580s (C=C), 1262m (C-N), 1542m (N-H), 580m & 522m (M-N), 470m & 424m (M-O); <sup>1</sup>H-NMR (δ / ppm): 8.56, (1H, NH); 6.22 (1H, methine); 8.13 (1H, alkenyl); 7.98 (1H); 3.92 (3H, OCH<sub>3</sub>); 3.86 (3H, OCH<sub>3</sub>), 10.16 (1H, phenolic OH); UV (λ<sub>max</sub>, nm): 386, 285.

**CdL<sup>4</sup><sub>2</sub>** (C<sub>30</sub>H<sub>24</sub>CdN<sub>2</sub>O<sub>4</sub>): IR (cm<sup>-1</sup>): 1551s (C=N), 1576s (C=C), 1256m (C-N), 1540m (N-H), 570m & 528m (M-N), 472m & 420m (M-O); UV (λ<sub>max</sub> / nm): 393, 279.

**HgL<sup>4</sup><sub>2</sub>** (C<sub>30</sub>H<sub>24</sub>HgN<sub>2</sub>O<sub>4</sub>): IR (cm<sup>-1</sup>): 1547s (C=N), 1578s (C=C), 1253m (C-N), 1538m (N-H), 576m & 520m (M-N), 480m & 422m (M-O); UV (λ<sub>max</sub> / nm): 388, 276.