



An indeno-quinoxaline based oxime ligand for the synthesis of polynuclear Ni(II) clusters.

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Streszczenie

The reaction of $\text{Ni}(\text{OAc})_2 \cdot 4\text{H}_2\text{O}$ with LH (LH = 11*H*-indeno[1,2-*b*]quinoxalin-11-one oxime) in a mixture of solvents comprising MeCN/MeOH (1 : 1) under solvothermal conditions in the presence of NEt_3 forms the complex $[\text{Ni}_3(\text{L})_5(\text{OAc})(\text{MeOH})] \cdot 2.6\text{MeCN} \cdot 0.7\text{MeOH} \cdot 0.2\text{H}_2\text{O}$ (**1**·2.6MeCN·0.7MeOH·0.2H₂O) in moderate yield. Repeating the reaction in MeOH produces the complex $[\text{Ni}_6(\text{L})_6(\text{OAc})_4(\text{OMe})_2] \cdot 1.5\text{MeOH} \cdot 1.3\text{H}_2\text{O}$ (**2**·1.5MeOH·1.3H₂O) in good yield, while the reaction between $\text{Ni}(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$ and LH in the presence of NEt_3 in MeOH under solvothermal conditions yields complex $[\text{Ni}_5(\text{L})_6(\text{OMe})_2(\text{OH})(\text{H}_2\text{O})_2(\text{MeOH})_2](\text{ClO}_4) \cdot 8.8\text{MeOH} \cdot 1.4\text{H}_2\text{O}$ (**3**·8.8MeOH·1.4H₂O). Furthermore, the reaction between $\text{Ni}(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$, LH and 2-amino-isobutyric acid, aibH, in MeCN in the presence of NEt_3 forms complex $[\text{Ni}_7(\text{L})_7(\text{aib})_4(\text{OH})(\text{MeCN})_{0.5}(\text{H}_2\text{O})_{0.5}](\text{ClO}_4)_2 \cdot 4\text{MeCN} \cdot 0.25\text{H}_2\text{O}$ (**4**·4MeCN·0.25H₂O) under high temperature/pressure, while the same reaction in MeOH yields complex $[\text{Ni}_8(\text{L})_8(\text{aib})_3(\text{OMe})_3](\text{ClO}_4)_2 \cdot 0.75\text{MeOH} \cdot 4.2\text{H}_2\text{O}$ (**5**·0.75MeOH·4.2H₂O). Variable temperature dc magnetic susceptibility studies show that all **1–5** clusters display a small or a diamagnetic ground-state, *S*.

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