Abstract

C$_{36}$H$_{44}$FeN$_{10}$O$_{8}$S$_{2}$, monoclinic, $P_{2_1}/c$ (no. 14), $a = 8.7712(5)$ Å, $b = 24.6087(12)$ Å, $c = 9.6083(4)$ Å, $\beta = 96.952(5)^\circ$, $V = 2058.68(18)$ Å$^3$, $Z = 2$, $R_{	ext{gt}}(F) = 0.0664$, $wR_{	ext{gt}}(F^2) = 0.1318$, $T = 173(2)$ K.

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The molecular structure is shown in the figure. Table 1 contains crystallographic data and Table 2 contains the list of the atoms including atomic coordinates and displacement parameters.

Source of material

The Schiff base ligand (E)-$N'$-(pyridin-4-ylmethylene)isonicotinohydrazide was prepared from the condensation of isonicotinaldehyde (CAS: 872-85-5) and isonicotinohydrazide (CAS: 54-85-3) under the reflux in methanol solution. The title

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compound was prepared by the liquid-phase diffusion method. First, 5 mL solution of (E)-N'-((pyridin-4-ylmethylene)isonicotinohydrazide (45.2 mg, 0.2 mmol) was put at the bottom of the test-tube, then, 5 mL mixed solution of methanol and 1,4-dioxane (V:V = 1:1) was layered on the previously mentioned solution. At last, 5 mL methanolic Fe(NCS)₂ (0.1 mmol/L, prepared according to the literature method [6]) solution was slowly layered on the top of test-tube. After one week, red block-shaped crystals of the title compound were obtained.

### Experimental details


### Comment

Schiff base derivatives have been widely studied as complex ligands [7, 8], or catalyst-active materials [9]. Its linear dipyridine derivatives were excellent linkers for polymeric complexes [10]. However, the coordination compounds of (E)-N’-((pyridin-4-ylmethylene)isonicotinohydrazide have not been reported yet. Herein, we report the crystal structure of a 2D-grid Fe(II) polymeric compound involving the Schiff base ligand (E)-N’-((pyridin-4-ylmethylene)isonicotinohydrazide.

The Fe(II) is bridged by two (E)-N’-((pyridin-4-ylmethylene)isonicotinohydrazide linkers to form the 2D-grid layer structure. Similar networks have been already reported [11, 12]. These layers are two-fold interpenetration.
The layers are interlinked to from 3D supramolecular networks by four intermolecular hydrogen bonds: N2–H2⋯O1 (symmetry code: x, −y + 1/2, z + 1/2) [length 2.00(1) Å, angle 164.37(2)°, C2–H2A⋯O1 (symmetry code: x − 1, y, z) [length 2.52(2) Å, angle 148.80(4)°], C7–H7⋯O1 (symmetry code: x, −y + 1/2, z + 1/2) [length 2.56(2) Å, angle 137.11(4)°], C2–H2A⋯N3 (symmetry code: x, −y + 1/2, z + 1/2) [length 2.66(5) Å, angle 145.13(3)°] between the layers.

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References