

# Synthesis and characterization of octahedral Ni(II) complex with condensation



product of 2-acetylthiazole and thiosemicarbazide

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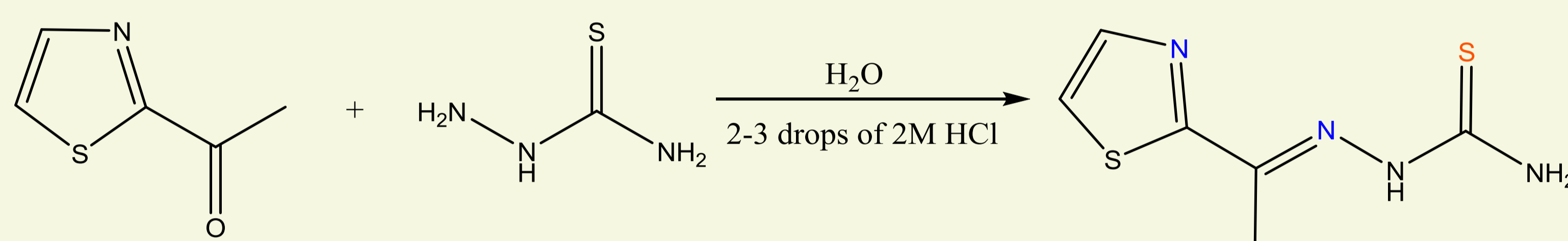
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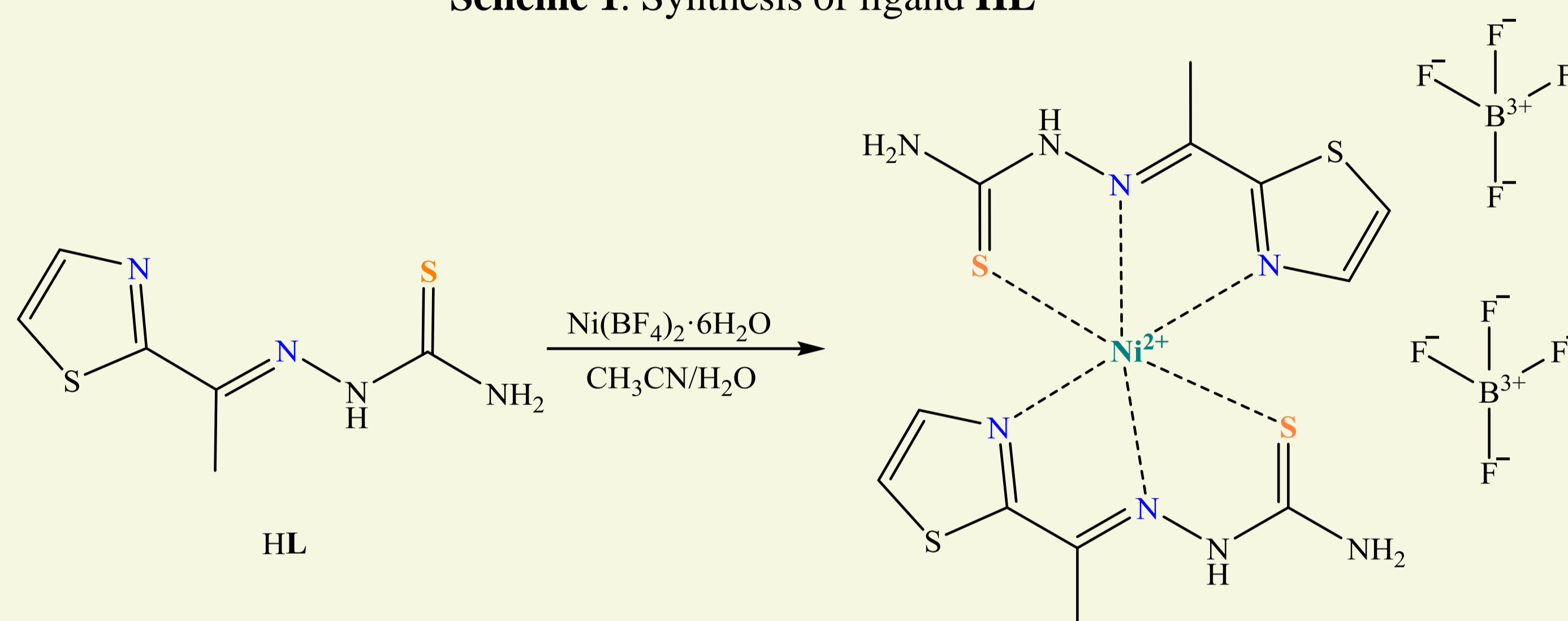
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The ligand **HL** (**HL** ligand, (*E*)-2-(1-(thiazol-2-yl)ethylidene)hydrazine-1-carbothioamide) was synthesized by the reaction of thiosemicarbazide and 2-acetylthiazole in molar ratio 1:1 in water, with 3 drops of 2M HCl. (**Scheme 1**). In the reaction of ligand (**HL**) and nickel(II) tetrafluoroborate hexahydrate [NiHL<sub>2</sub>](BF<sub>4</sub>)<sub>2</sub> complex was obtained (**Scheme 2**).



Scheme 1. Synthesis of ligand **HL**



Scheme 2. Synthesis of complex [NiHL<sub>2</sub>](BF<sub>4</sub>)<sub>2</sub>

The ligand (**HL**) and the [NiHL<sub>2</sub>](BF<sub>4</sub>)<sub>2</sub> complex were characterized by elemental analysis, IR and UV/Vis spectroscopy and structure of the complex was defined by X-ray analysis. The Ni(II) ion has octahedral coordination geometry. The tridentate ligand (**HL**) is coordinated to the nickel ion with a NNS set of donor atoms forming two five-membered chelate rings.

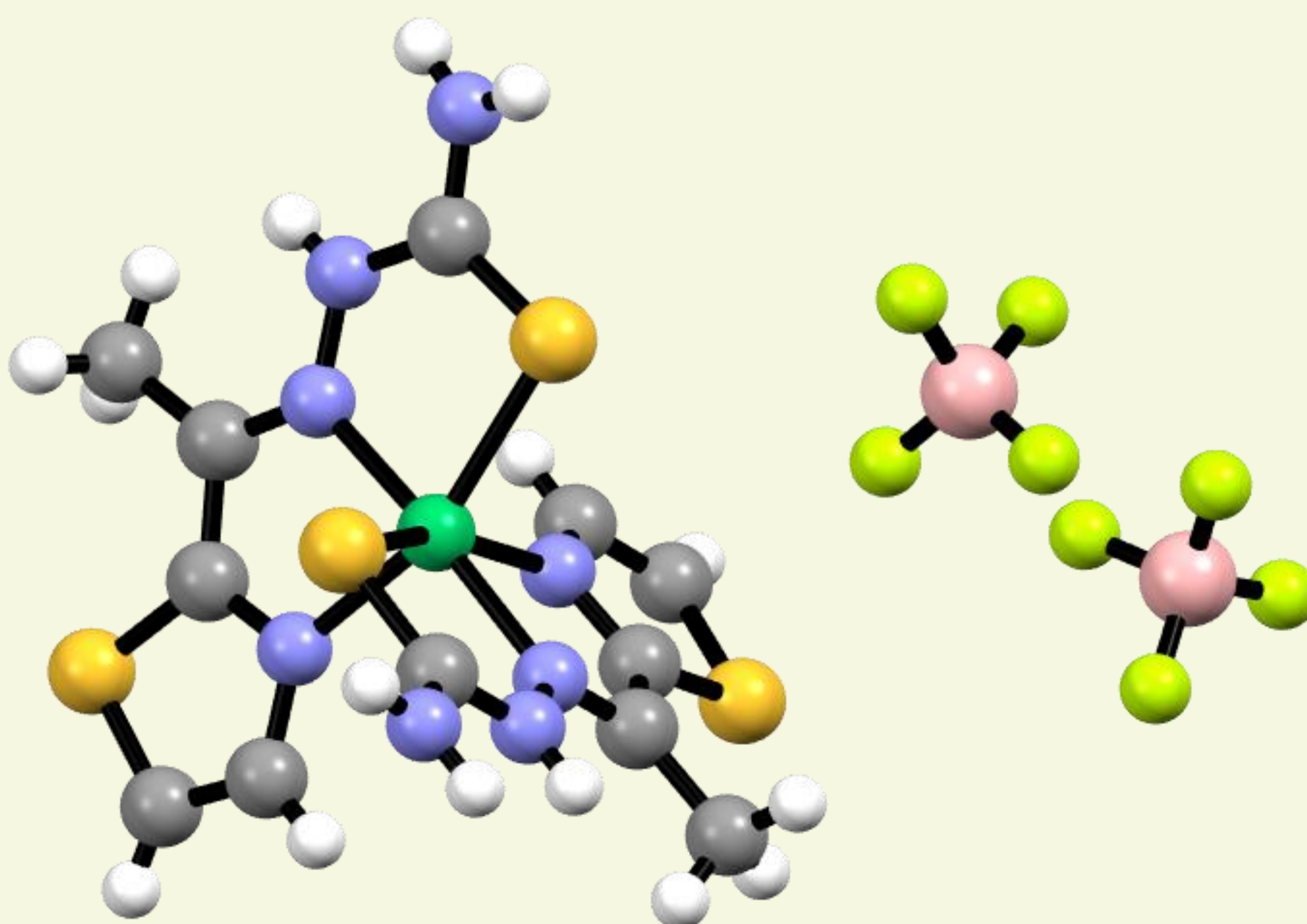


Fig 1. [NiHL<sub>2</sub>](BF<sub>4</sub>)<sub>2</sub>

Fig. 1. The complex crystallizes in the monoclinic space group  $P 2_1/n$ .