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Crystal structure antioxidant activity lanthanide(III) complexes with tridentate ligand

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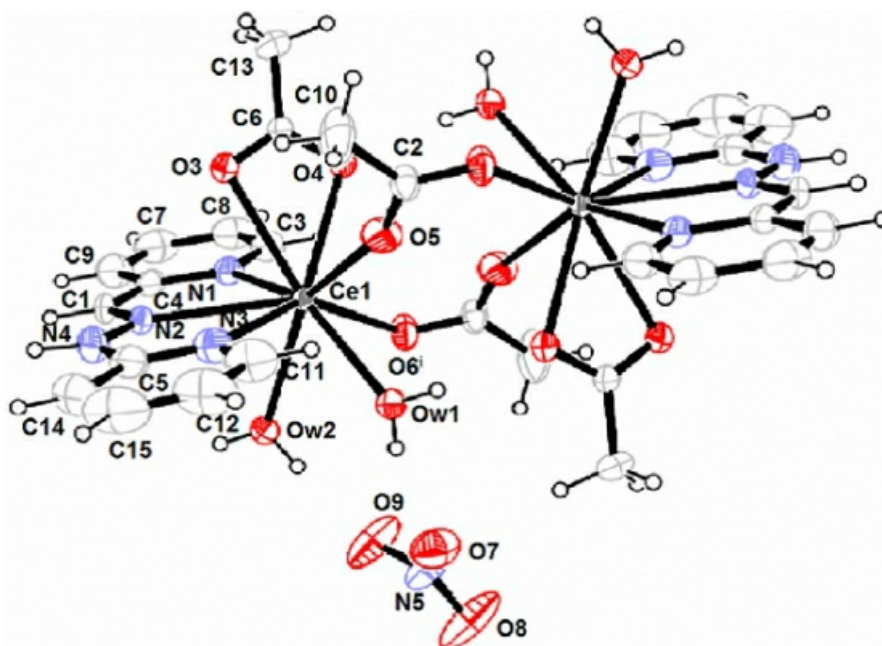
The tridentate N4-type Schiff base was synthesized in situ from the condensation reaction of 2-hydrazinopyridine and pyridine-2 carbaldehyde. Novel lanthanide(III) (Ln= Ce, Pr, Gd and Er) complexes were isolated when lanthanide(III) nitrate salt were added to the solution of the ligand. The complexes were characterized by IR spectra, room temperature magnetic measurement, elemental analyses and the structure of the Ce(III) complex was determined by X-ray single crystal diffraction . The complex crystallizes in the monoclinic system with space group P21/c. The geometry around the metal center shows distorted tricapped trigonal prism. It is noteworthy that the tridentate Schiff base acts as tridentate ligand leading nine-coordinate complex.

The antioxidant studies show that the values of IC₅₀ of the ligand HL and complexes 1 – 3 at 40 mg/L on the DPPH• radical scavenging effects are respectively 16.32 ± 0.03, 3.72 ± 0.02, 12.05 ±0.04 and 8.95 ± 0.01 M, respectively. The values of IC₅₀ present the order 1 < 3 < 2 < HL.

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Keywords: [single-crystal X-ray study](#); $R_1 = 0.0264$, $wR_2 = 0.0590$; [antioxidant activity](#); [LANTHANIDE\(III\) COMPLEXES](#); [TRIDENTATE LIGAND](#)