

Title: **Coordination compounds with formula $C[Ln(diketonate)_4]$ and $[Ln(diketonate)_3(NN)]$. Magnetic and luminescent properties.**

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The mononuclear compounds of formula $[Ln(btfa)_3(H_2O)_2]$ ($Ln = Tb, Eu, Dy, Sm, Yb$ (**1**), Nd (**2**), La) have been synthesized satisfactorily according to literature¹ and have been structurally characterized. Hbtfa = 4,4,4-trifluoro-1-phenyl-1,3-butanedione.

Three new compounds with formula, $[Acr[Dy(btfa)_4]$ (**3**), $Acr[Yb(btfa)_4]$ (**4**) and $[Nd(btfa)_4(NO_2\text{-phenanthroline})]$ (**5**) ($Hacr =$ acridine, $NO_2\text{-phenanthroline} =$ 5-nitro-1,10-phenanthroline) have been successfully synthesized and structurally characterized.

The alternating current magnetic studies confirmed a field induced SMMs behaviour for **1** and **2**.

Luminescence can be observed it when UV light is applied in the mononuclear compounds of $[Eu(btfa)_3(H_2O)_2]$ and $[Tb(btfa)_3(H_2O)_2]$.

Keywords: lanthanide, single-molecule magnet, β -diketonate ligand, coordination compounds.