ELECTRONIC SUPPLEMENTARY INFORMATION

to

Dodecanuclear $[Mn^{III}_6Ln^{III}_6]$ species: Synthesis, structure and characterization of magnetic relaxation phenomena †

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SYNTHETIC DETAILS

All manipulations were performed under aerobic conditions using materials (reagent grade) and solvents as received.

General synthetic strategy applicable to **1**-**2**:

$Mn(O_2CPh)_2{\cdot}2H_2O$ (120.33 mg, 0.33 mmol), $Ln(NO_3)_3{\cdot}6H_2O$ (0.33 mmol), H_3L (86 mg, 0.33 mmol) and NEt_3 (~ 1 mmol) were dissolved in MeCN (20 mL) forming a yellow suspension that was left upon stirring for ~35' to yield a dark brown solution. The solution was then filtered and left undisturbed to evaporate slowly at room temperature. Dark-brown single-crystals suitable for X-ray crystallography were formed after ~ 3 days in 30-35% yields, and they were washed with Et_2O and dried in air.

Elemental Anal. calcd (found) for **1**·4MeCN·H_2O: C 45.54 (45.63), H 3.12 (2.98), N 2.33 (2.17); **2**·3MeCN·H_2O: C 45.63 (45.74), H 3.14 (2.99), N 2.34 (2.22) %.

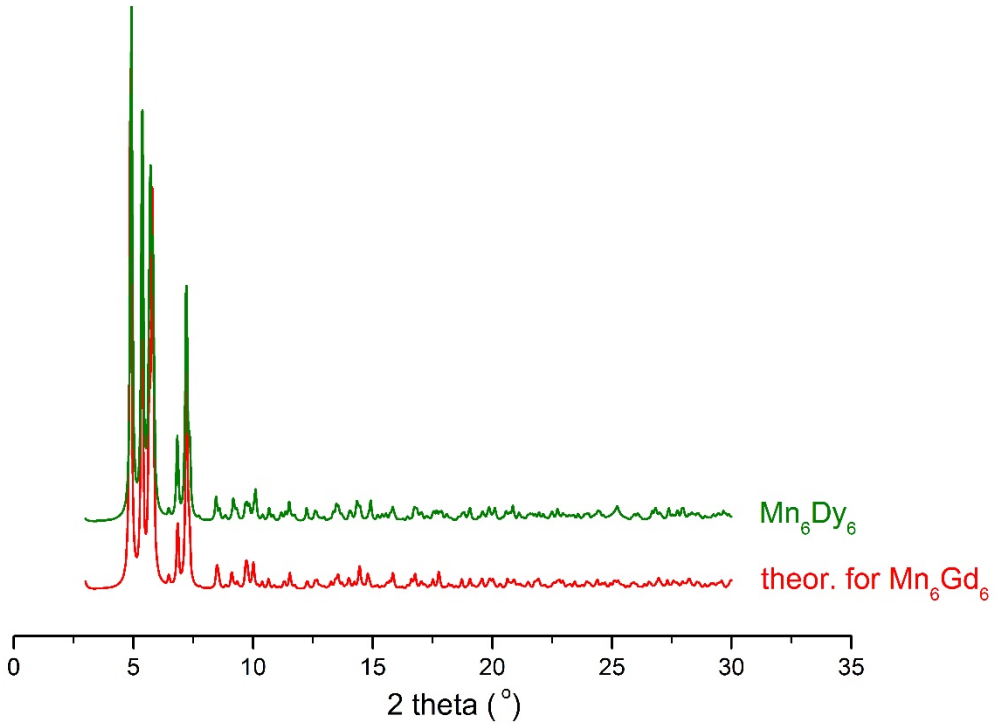


Fig. S1 Experimental PXRD pattern for the Dy analogue (top) compared with the theoretical PXRD pattern of the Gd analogue (bottom).

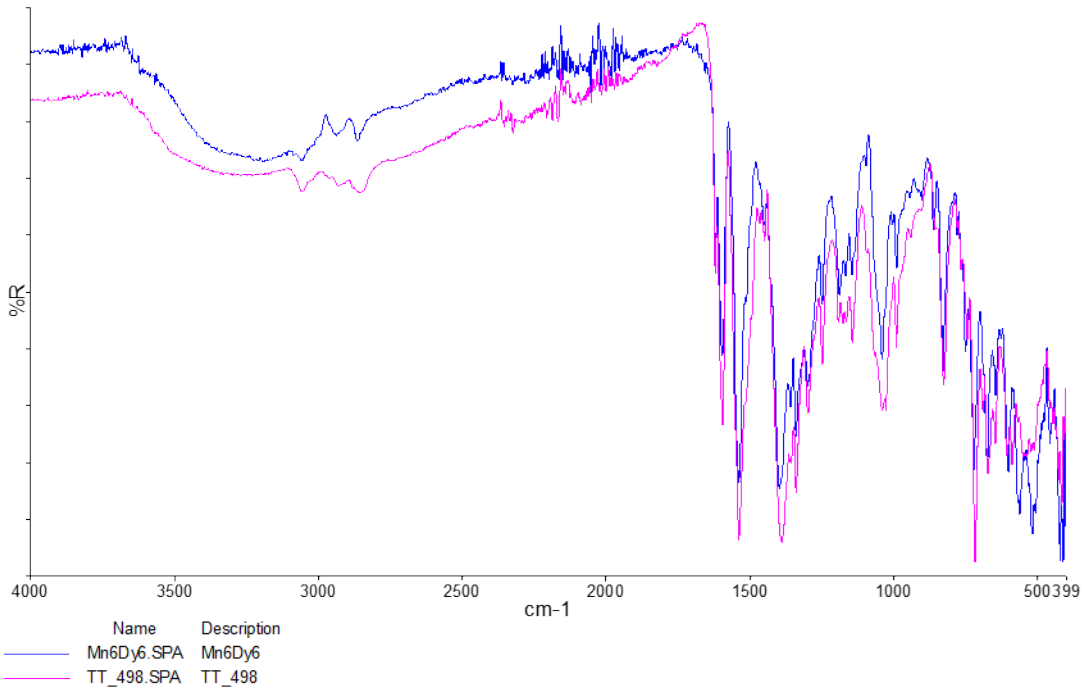
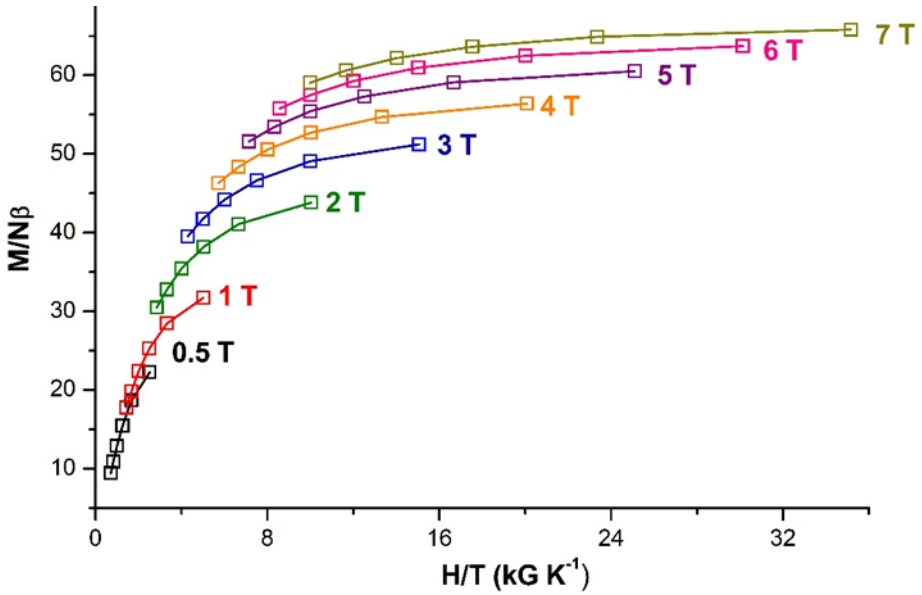


Fig. S2 IR spectra comparison for the Dy (blue line) and Gd (red line) analogues



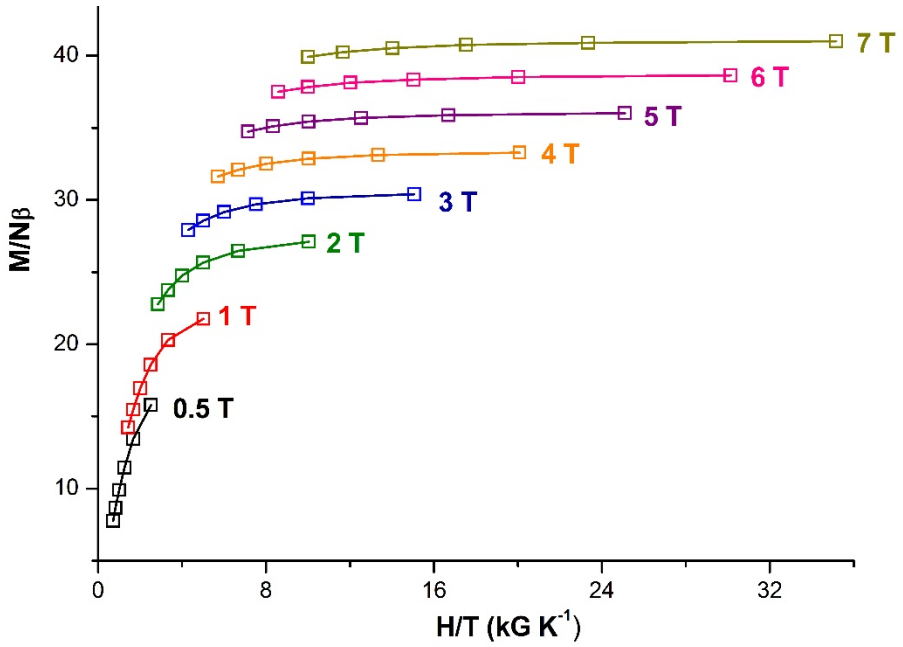


Fig. S3 Reduced magnetization plots for compounds **1**(top) and **2** (bottom) at the indicated fields. The solid lines are guides for the eye.