Fig. S1  X-ray molecular structures of (a) cis-[MoO$_2$(acacL$_3$)] (3) and (b) cis-[MoO$_2$(acacL$_4$)] (4) with the atom labeling schemes. In both structures, thermal ellipsoids of all non-hydrogen atoms are drawn at the 30% probability level.
Fig. S2 Centrosymmetric N–H⋯O hydrogen bonded dimers of (a) cis-[MoO$_2$(acacL$^3$)] (3) and (b) cis-[MoO$_2$(acacL$^4$)] (4).
Fig. S3 Electronic spectra of 1–5 in methanol.
Fig. S4 $^1$H NMR spectra of 1–5 in dimethylsulfoxide-d$_6$. 
Fig. S5 $^{13}$C NMR spectra of 1–5 in dimethylsulfoxide-d$_6$. 