Supplementary materials

Novel vanadium (III) complexes with rigid phenylpolyboxylate ligands: synthesis, structures and application in C-H bond activation

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Table S1 Characteristic IR bands (cm^{-1}) for the complexes **1** and **2**.

Complexes	**1**	**2**
ν(O-H)	3292, 3467	3257, 3439
ν(=C-H)	3056, 3075	3060
νas(COO^-)	1652	1672
νs(COO^-)	1395	1379
ν(V-OH_2O)	512	539
ν(V-Ocarboxyl)	475	491
ν(V-N)	449	455

Table S2 Characteristic UV-Vis bands (nm) for the complexes **1** and **2**

Complexes	π–π* transition	LMCT	d–d transition
1	262	420	742, 1040
2	268	456	742, 1100

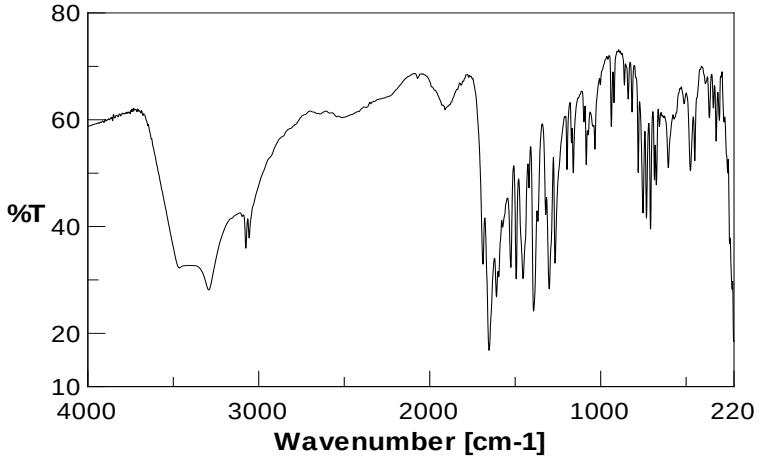

Fig. S1 The IR spectra of the complex **1**

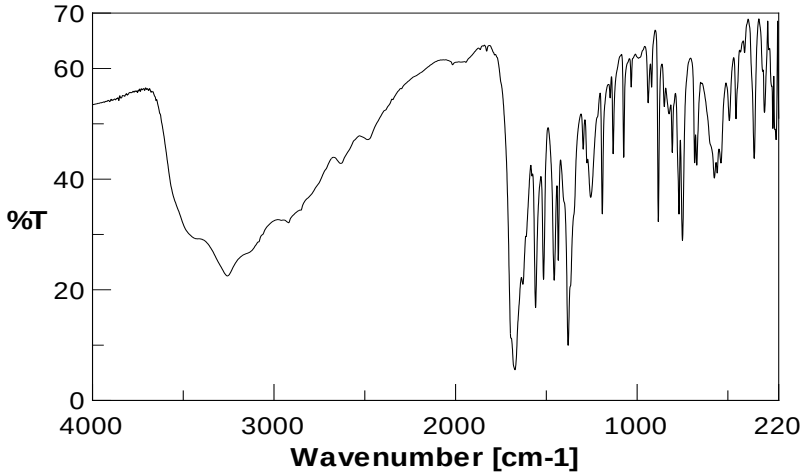

Fig. S2 The IR spectra of the complex **2**

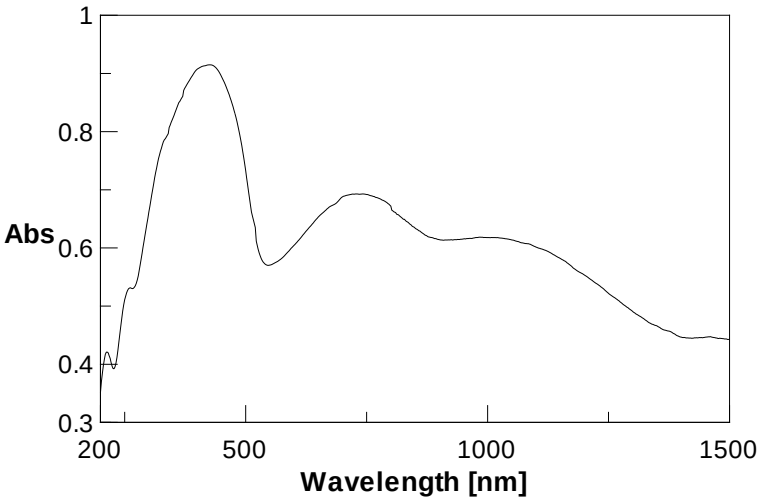

Fig. S3 The UV–Vis spectra for the complex **1**

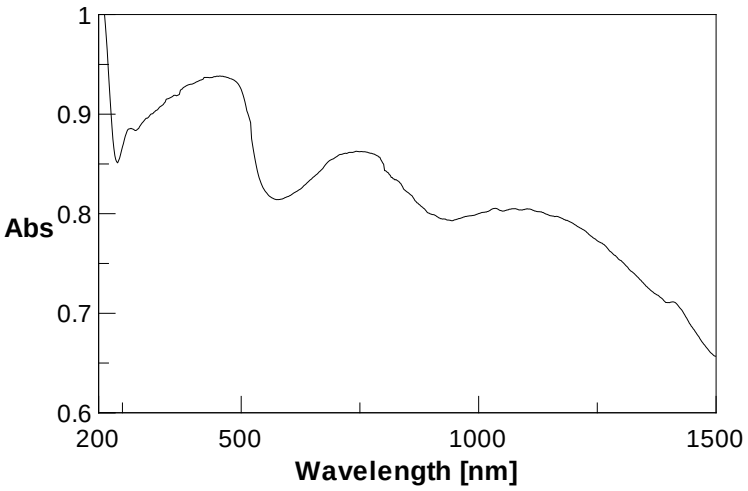

Fig. S4 The UV–Vis spectra for the complex **2**

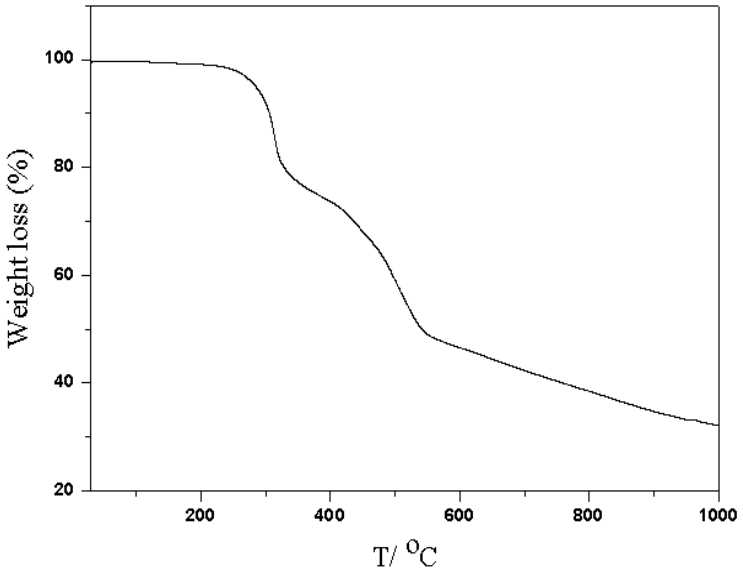

Fig. S5 TG curve of the complex **1**.

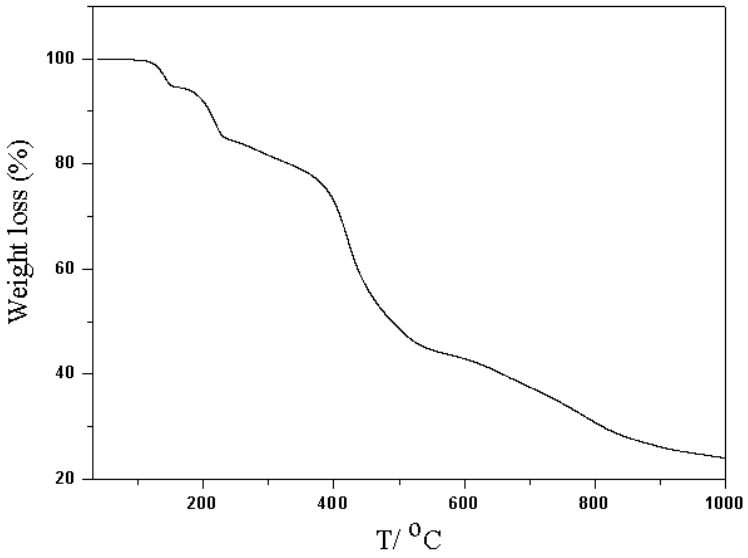

Fig. S6 TG curve of the complex **2**.

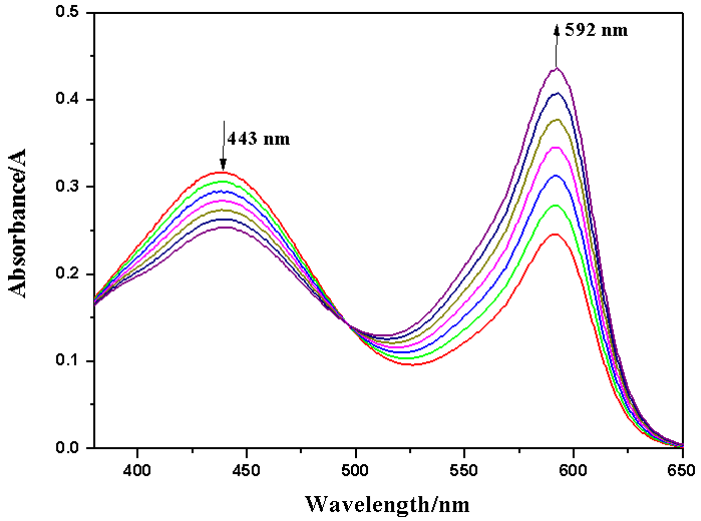

Fig. S7 Oxidative bromination of phenol red catalyzed by the complex **1**. Spectral changes at 10 min intervals, c(phosphate buffer) = 50 mmol/L, pH = 5.8, c(KBr) = 0.4 mol/L, c(phenol red) =10^{-4} mol/L

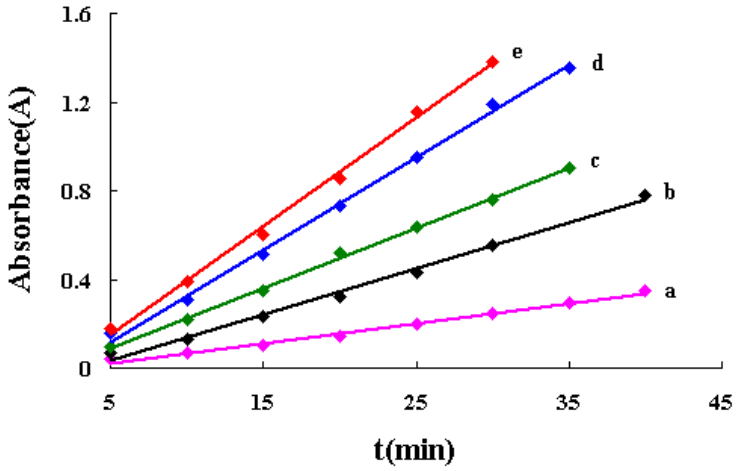

Fig. S8 The measurable absorbance dependence of time for the complex **1**. Conditions used: pH = 5.8, c(KBr) = 0.4 mol/L, c(H_2O_2) = 1 mmol/L, c(phenol red) = 10^{-4} mol/L. c(complex **1**/mmol/L) = a: 2.3011×10^{-5}; b: 4.602×10^{-5}; c: 6.9032×10^{-5}; d: 9.2042×10^{-5}; e: 1.1505×10^{-4}.

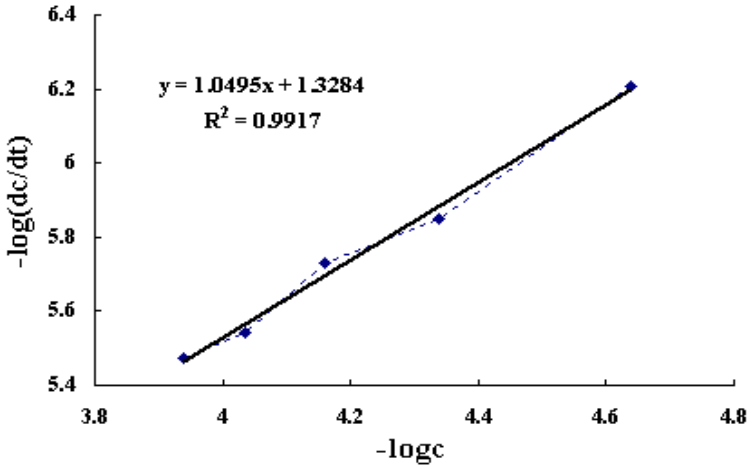

Fig. S9 –log(dC/dt) dependence of –logc for complex **1** in DMF–H_2O at 30 ± 0.5 °C (c is the concentration of the oxidovanadium complex **1**; Conditions used: c(phosphate buffer) = 50 mmol/L, pH = 5.8, c(KBr) = 0.4 mol/L, c(phenol red) = 10^{-4} mol/L.