

## Supporting information

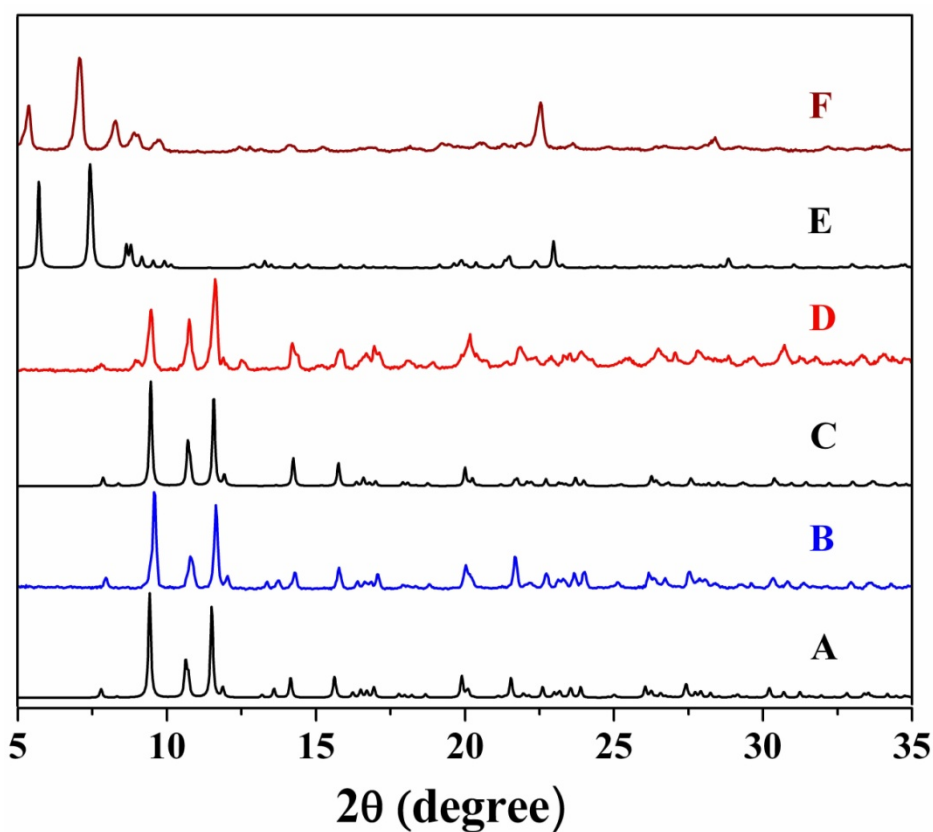
### pH dependent facile synthesis of di- and tri-nuclear oxime based Cu(II) complexes: strong antiferromagnetic coupling in the dinuclear complexes and spin frustration in the trinuclear complex

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**Fig.S1.** A, C and E are the simulated patterns of complexes 1-3 respectively, while B, D and F are the experimental patterns of complexes 1-3 respectively.

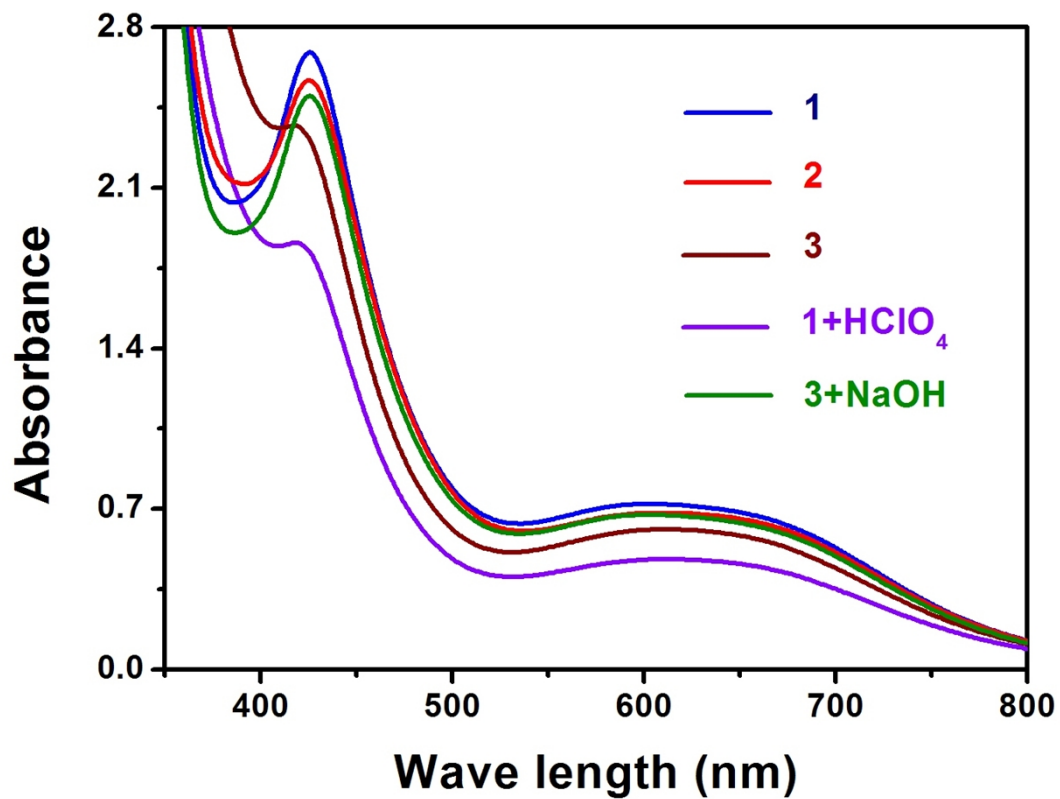


Fig. S2. UV-Vis spectra of complexes 1-3 in methanol (from 350 nm to 800 nm).

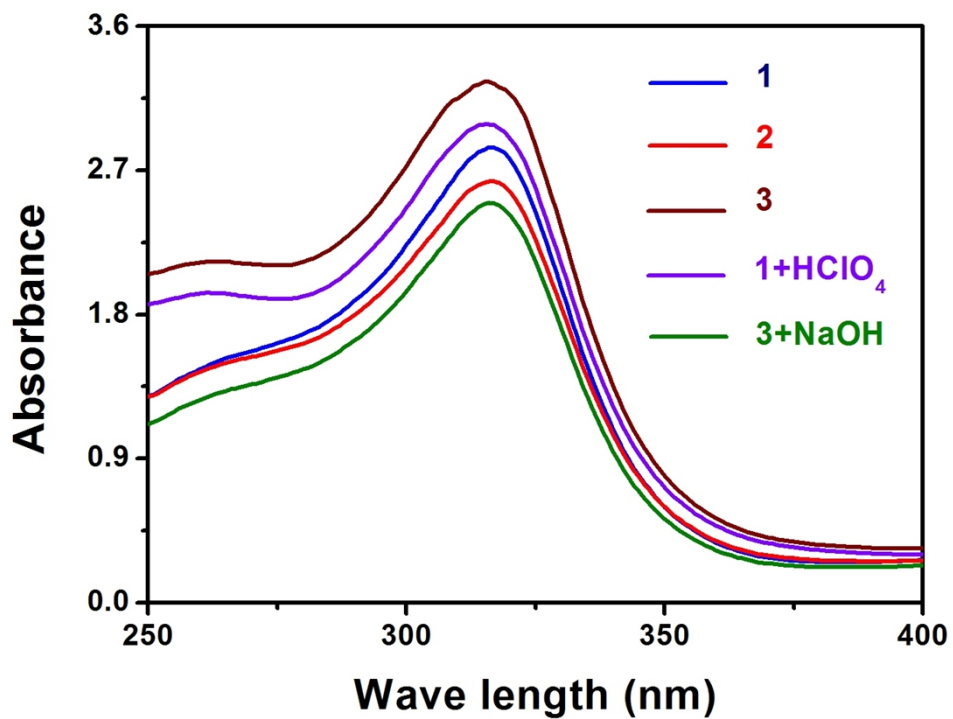


Fig. S3. UV-Vis spectra of complexes 1-3 in methanol (from 250 nm to 400 nm).

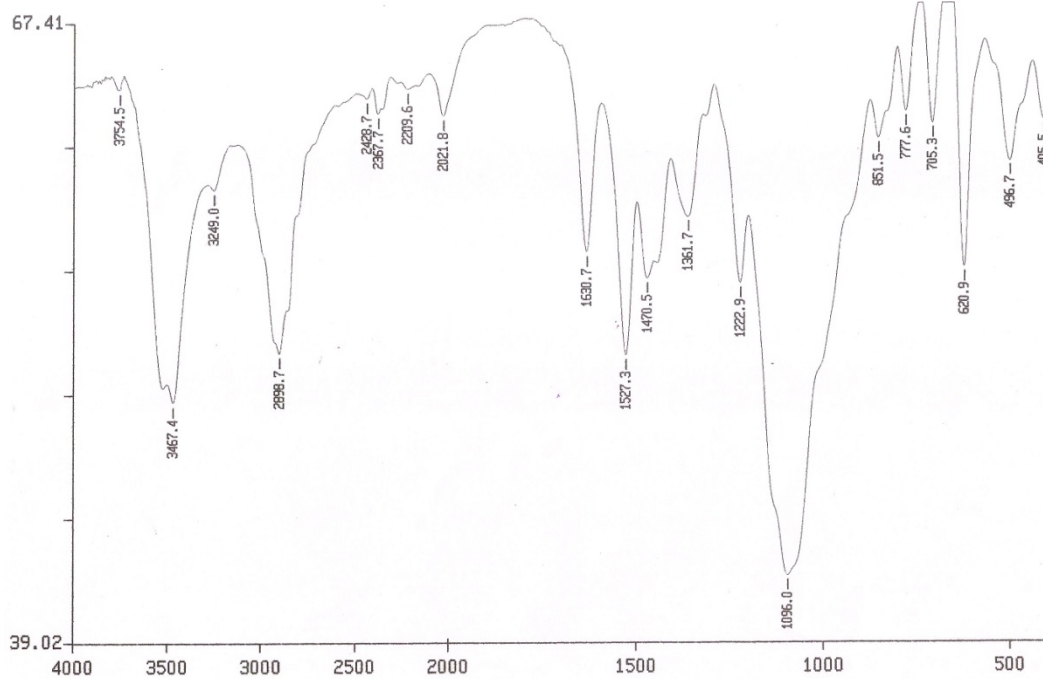


Fig. S4. IR spectrum of complex 1.

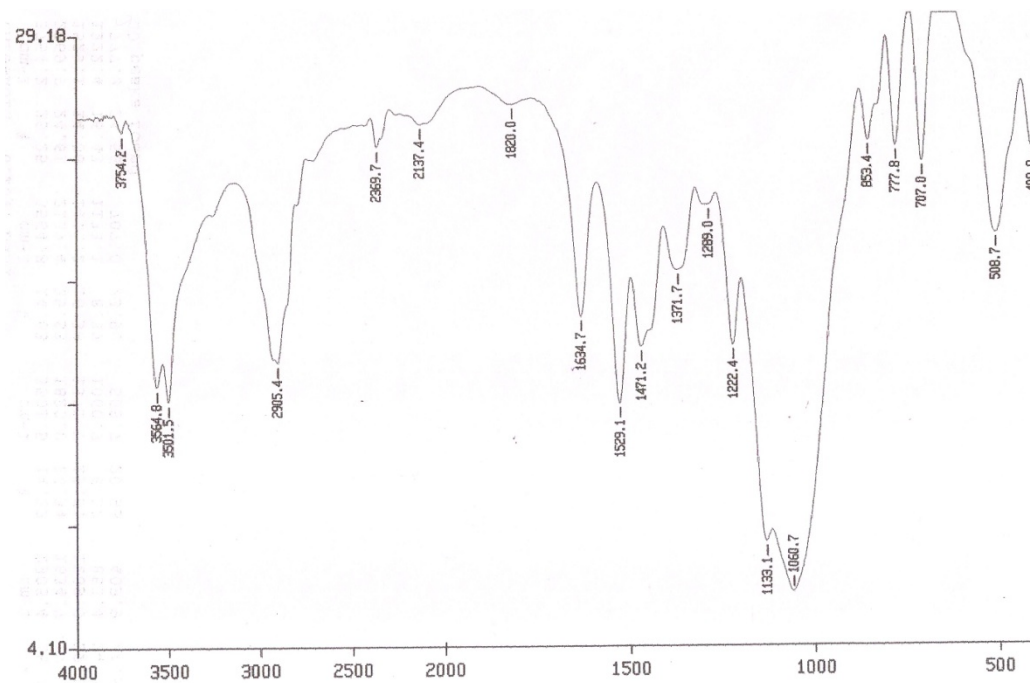


Fig. S5. IR spectrum of complex 2.

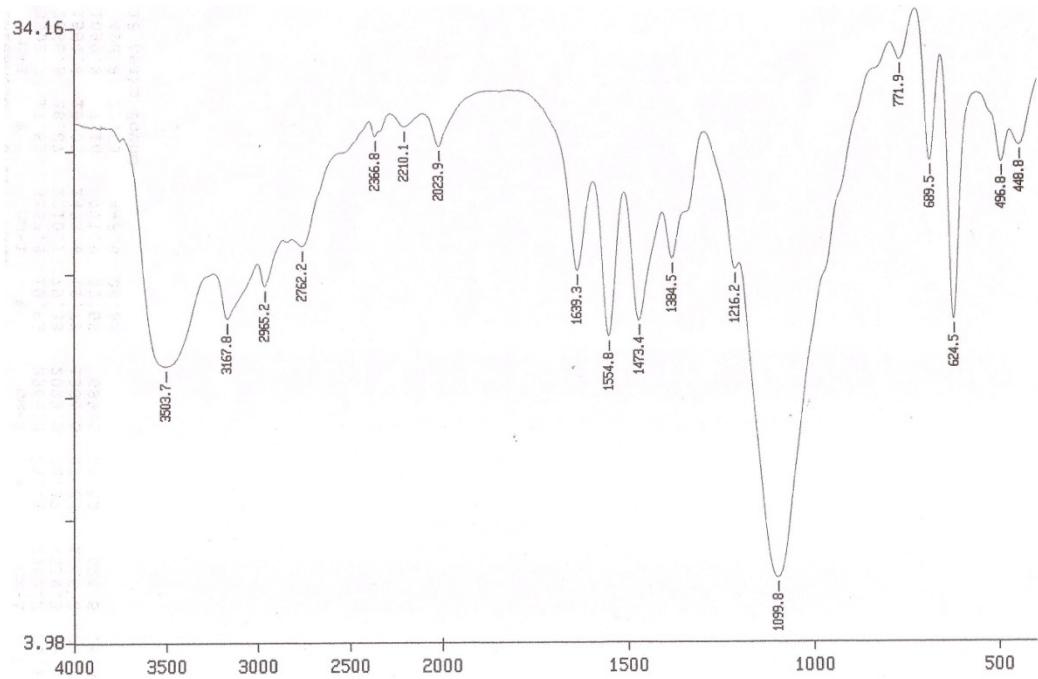


Fig. S6. IR spectrum of complex 3.

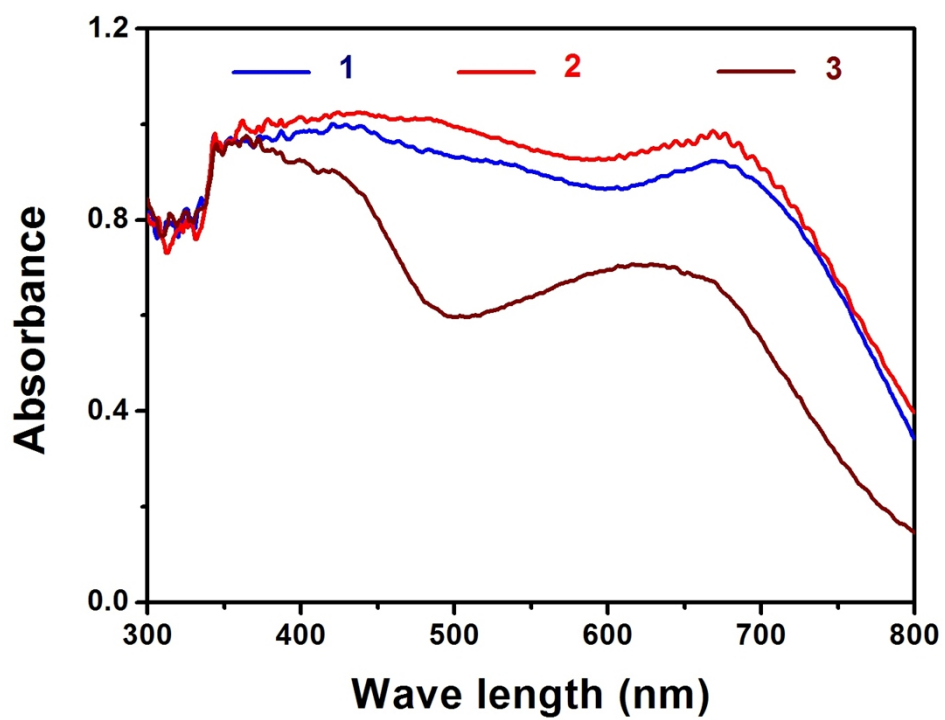
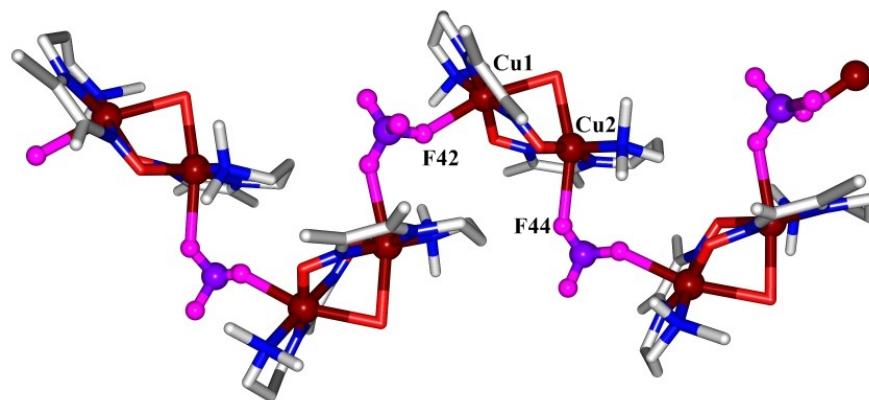
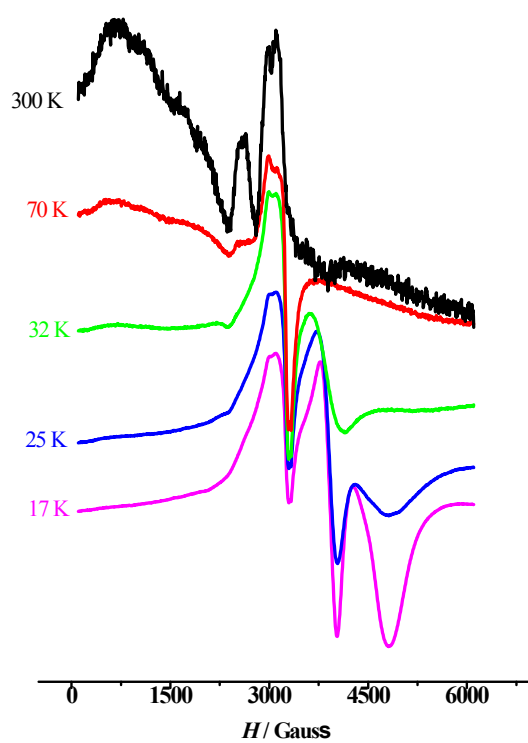


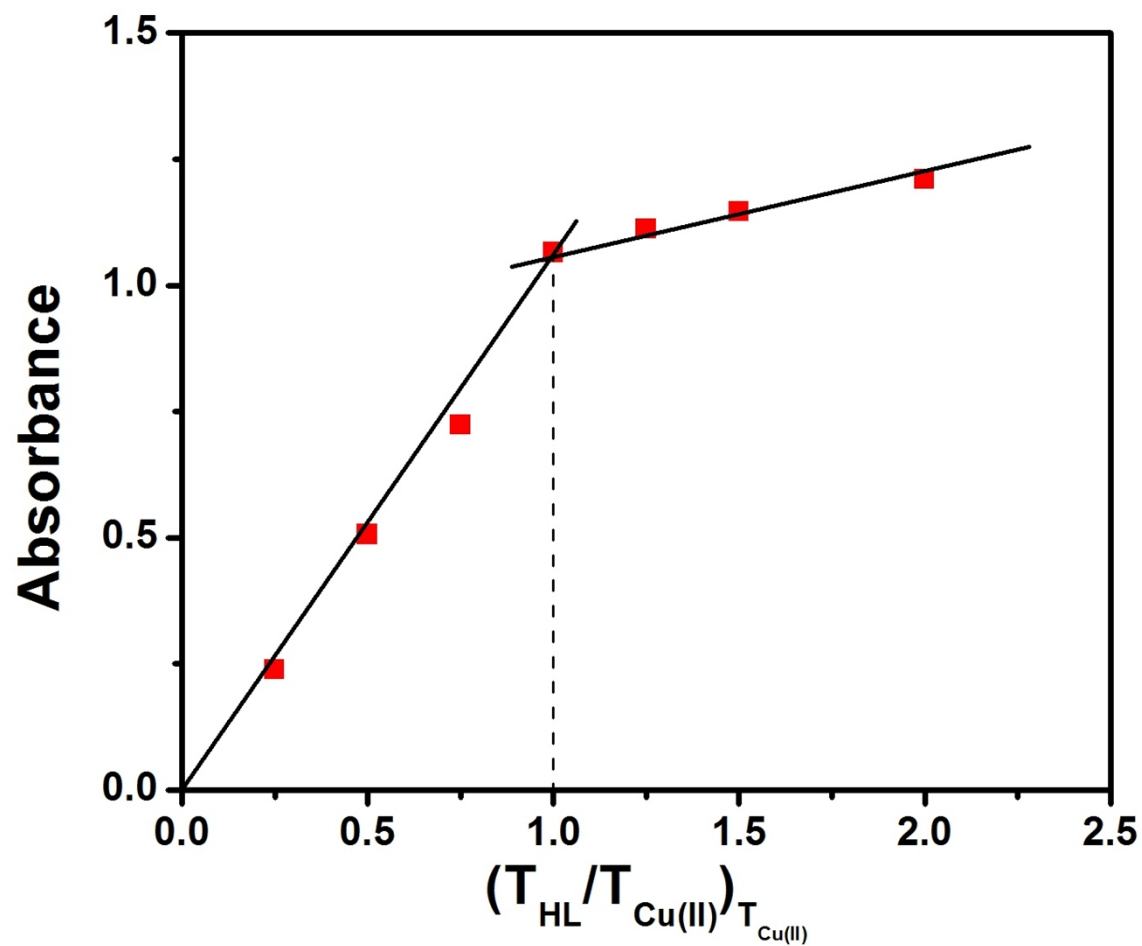
Fig. S7. Reflectance UV-Vis spectra of complexes 1-3 in solid state (from 300 nm to 800 nm).



**Fig. S8.** The 1D zigzag coordination polymer of **2**. H-atoms have been removed for clarity.



**Fig. S9.** X-band EPR spectra of powder sample of **3** recorded at 300K, 70 K, 32 K, 25 K and 17 K.



**Fig. S10.** UV-Vis titrations of HL with Cu(II) ion. The plot of absorbance vs  $(T_{HL}/T_{Cu(II)})_{T_{Cu(II)}}$  at constant  $T_{Cu(II)}$  (mole ratio method) clearly shows that 1:1 complex is formed in solution.