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Characterization and biological activity of Pefloxacin–imidazole mixed ligands complexes

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Table 1. : IR spectral bands of PEF-HIm and their mixed ligand complexes

Compound	\square OH COOH (cm ⁻¹)	\square H ₂ O (cm ⁻¹)	\square NH HIm (cm ⁻¹)	\square NH ⁺ PEF (cm ⁻¹)	\square S=O _{asym} / \square S=O _{sym} (cm ⁻¹)	\square C=O COOH (cm ⁻¹)	\square C=O keto- (cm ⁻¹)	\square C=N HIm (cm ⁻¹)	\square C-F (cm ⁻¹)	\square M-Cl M-O M-N
PEF. Mesylate	3452			2729	1175 1055	1717	1630		1199 1087	
HIm			3130 3100					1600 1560		
[Co(PEF)(HIm)Cl (H ₂ O) ₂]		3486				1615 1577		1527	1197 1087	440 512 548
[Ni(PEF)(HIm)Cl]·H ₂ O		3468				1615 1575		1486	1189 1088	509 546
[Cu (PEF)(HIm)Cl]·2.5H ₂ O		3457	2941			1627 1588		1549	1193 1081	513 550
[Zn(PEF)(HIm)Cl(H ₂ O) ₂] ·0.25H ₂ O		3486				1627 1568		1520	1187 1088	503 547
[Cr(PEF)(HIm)Cl ₂ (H ₂ O)]		3439				1634 1572		1525	1188 1121	428 501 541
[Ag(PEF))(HIm)]·2H ₂ O		3460		2724		1717	1629		1202 1087	493 547
[Mn(PEF)(HIm)Cl]		3429				1627 1576		1491	1186 1087	499 549

Table 2. : Characteristic UV-Vis. bands (λ_{max} nm) in water solvent for Pefloxacin ligand and PEF-HIm mixed ligands complexes:

Compound	Intra-Ligand bands			d-d transitions $\lambda_{\text{max}}(\text{nm})$	$\mu_{\text{B.M.}}$
	$\pi-\pi^*$ transitions	$n-\pi^*$ transitions	CT transitions $\lambda_{\text{max}}(\text{nm})$		
PEF. Mesylate	207,222, 276	315	330		
[Cr(PEF)(HIm)Cl ₂ (H ₂ O)]	281	323	336	566	3.877
[Mn(PEF)(HIm)Cl]	274	316	332,430	- -	6.070
[Co(PEF)(HIm) Cl (H ₂ O) ₂]	205, 278	319	334	494, 513	1.855
[Ni(PEF)(HIm)Cl].H ₂ O	205, 275	319	334	604, 678,739	3.877
[Cu (PEF)(HIm)Cl].2.5H ₂ O	278	318	332	600 - 650	1.871
[Zn(PEF)(HIm)Cl(H ₂ O) ₂].0.25H ₂ O	221, 279	319	334	- -	-
[Ag (PEF)(HIm)].2H ₂ O	206, 276	316	334	- -	-

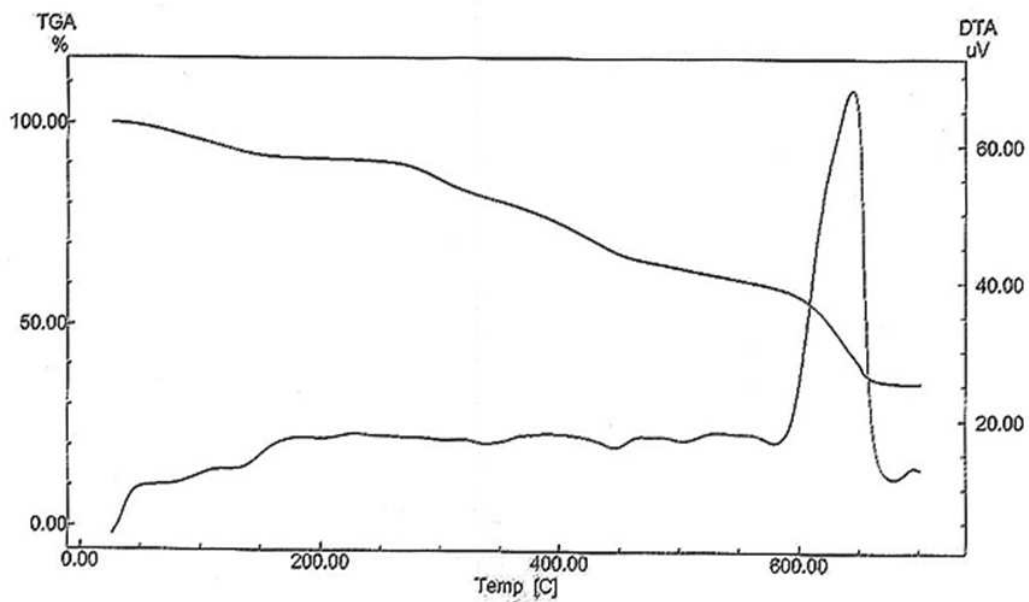


Figure 6. : a) TGA b) DTA of $[\text{Cr}(\text{PEF})(\text{HIm})\text{Cl}_2(\text{H}_2\text{O})]$

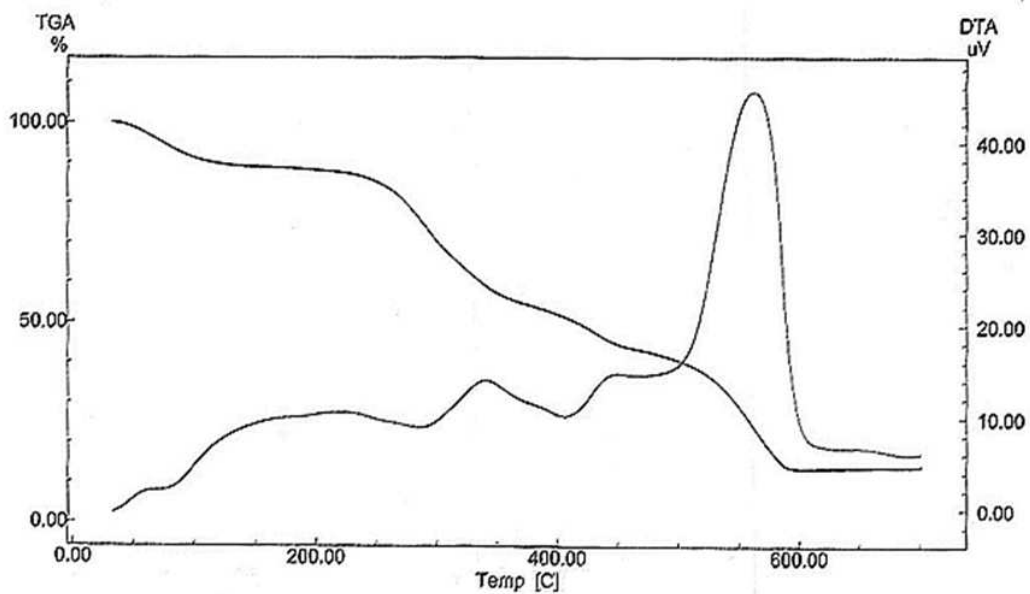


Figure 7. : a) TGA b) DTA of $[\text{Mn}(\text{PEF})(\text{HIm})\text{Cl}]$

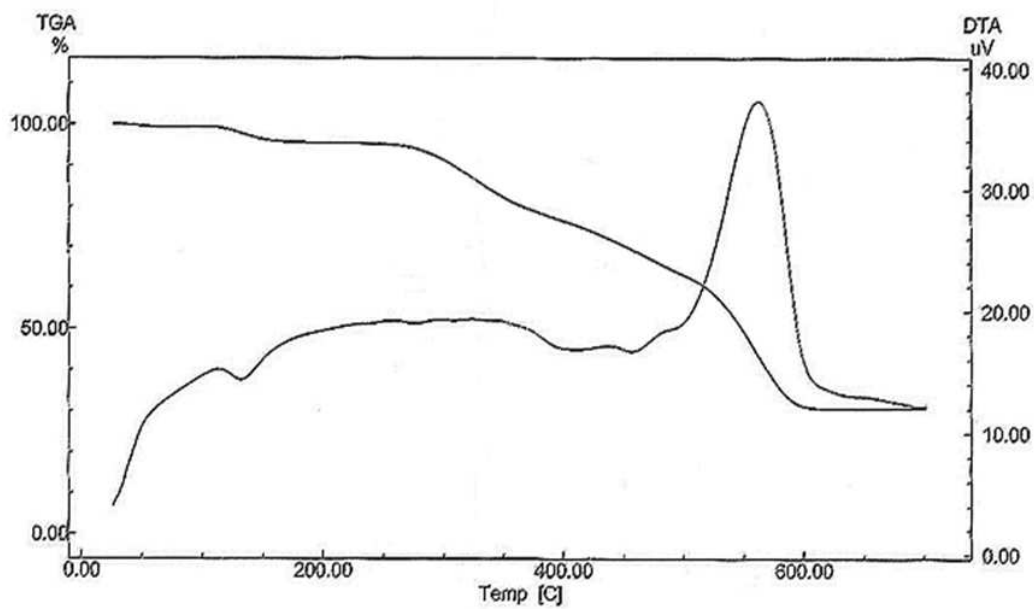


Figure 8. : a) TGA b) DTA of $[\text{Co}(\text{PEF})(\text{HIm})\text{Cl}(\text{H}_2\text{O})_2]$

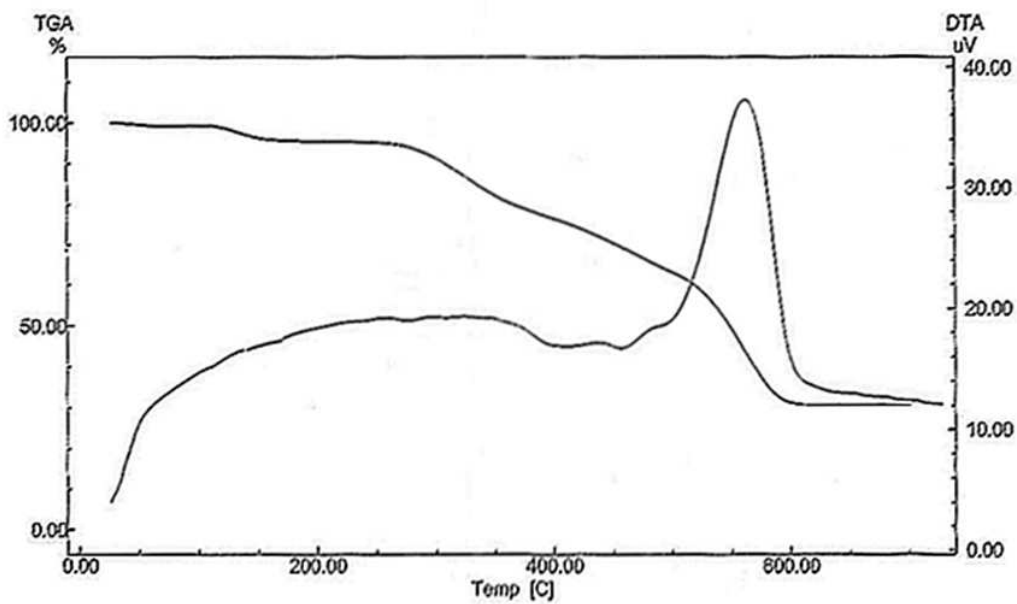


Figure 9. : a) TGA b) DTA of $[\text{Ni}(\text{PEF})(\text{HIm})\text{Cl}] \cdot \text{H}_2\text{O}$

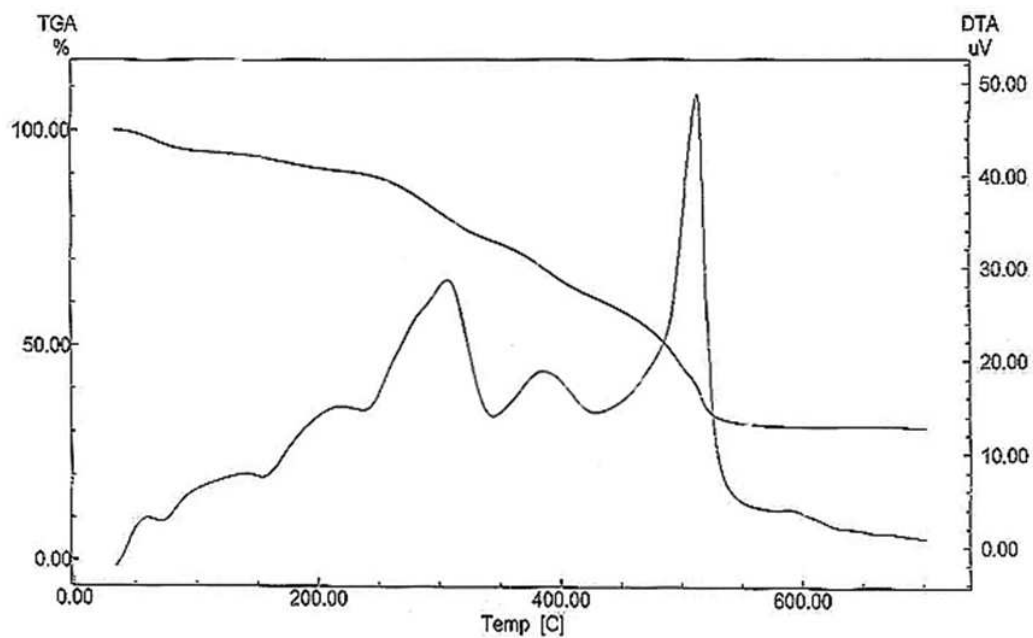


Figure 10. : a) TGA b) DTA of $[\text{Cu}(\text{PEF})(\text{HIm})\text{Cl}] \cdot 2.5\text{H}_2\text{O}$

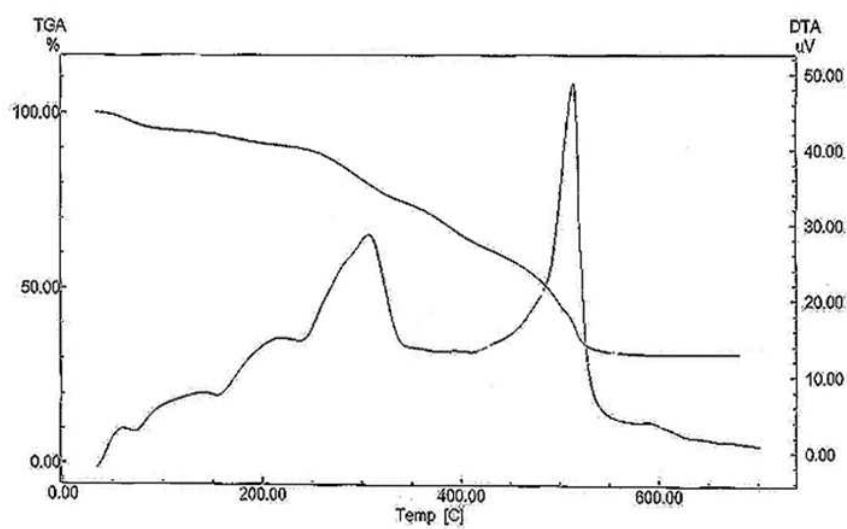


Figure 11. : a) TGA b) DTA of $[\text{Zn}(\text{PEF})(\text{HIm})\text{Cl}(\text{H}_2\text{O})_2] \cdot 0.25\text{H}_2\text{O}$

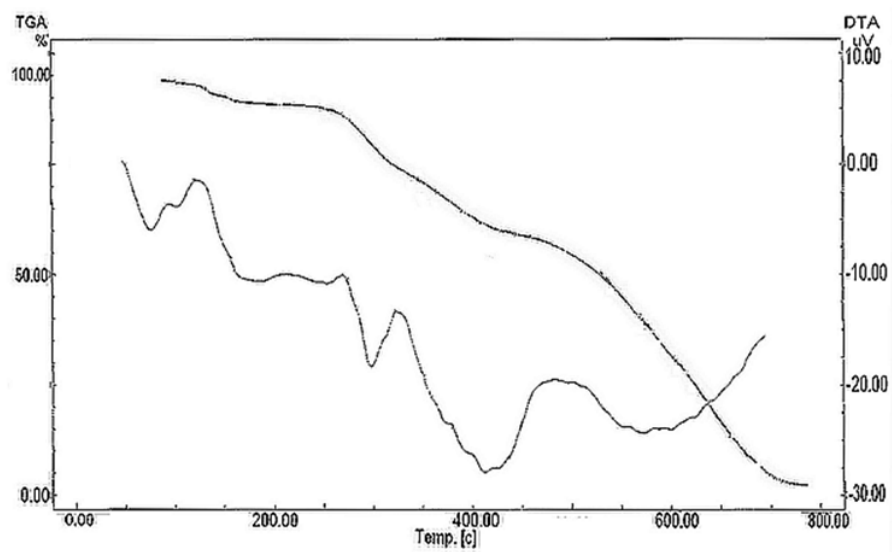


Figure 12. : a) TGA b) DTA of $[Ag (PEF)(HIm)].2H_2O$