The kinetics and mechanism of formation of the complex $[Ru(CN)_5INH]^{3-}$ through the ligand substitution reaction between Aquapentacyanoruthenate(II) anion and Isoniazid

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FIGURE CAPTION

Figure S1 Experimental IR spectrum of Ruthenium complex in D_2O solvent.

Figure S2 Experimental ^1H NMR spectrum of Ruthenium complex in D_2O solvent.

Figure S3 Experimental mass spectrum of the complex.

Scheme S1 Synthesis of pentacyanopyridine-4-carbohydrazidoruthenate(II) ion ($[Ru(CN)_5INH]^{3-}$) complex.

TABLE CAPTION

Table S1 ^1H NMR chemical shifts values (δ / ppm) in D_2O – solvent at 25°C and their respective assignments for $[Ru(CN)_5INH]^{3-}$ complex.

Table S2 Effect of $[Ru(CN)_5H_2O^{3-}]$ under conditions [INH] = 4 x 10^{-3} M, pH = 4.0 ± 0.02, Ionic Strength = 0.2 M ($NaClO_4$) and Temperature = 25.0 ± 0.01˚C.

FIGURE CAPTION

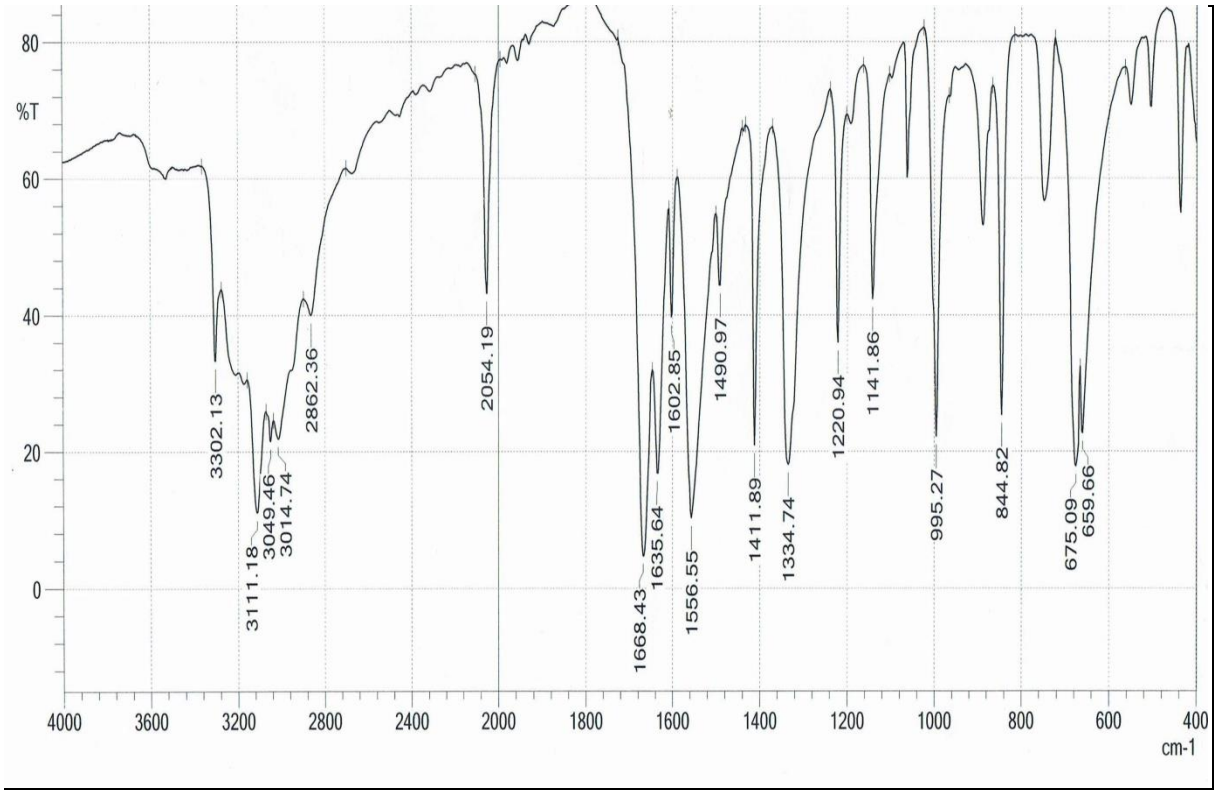


Figure S1 Experimental IR spectrum of Ruthenium complex in D_2O solvent.

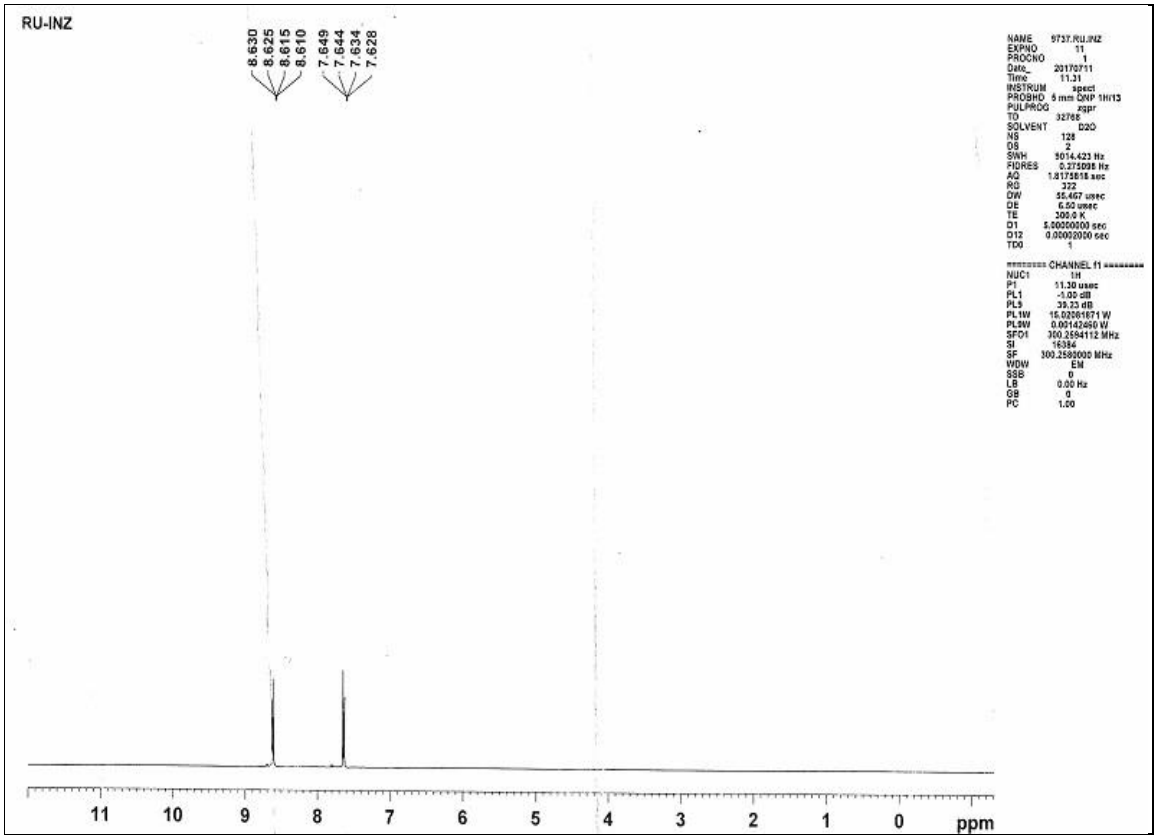


Figure S2 Experimental ^{1}H NMR spectrum of Ruthenium complex in D_2O solvent.

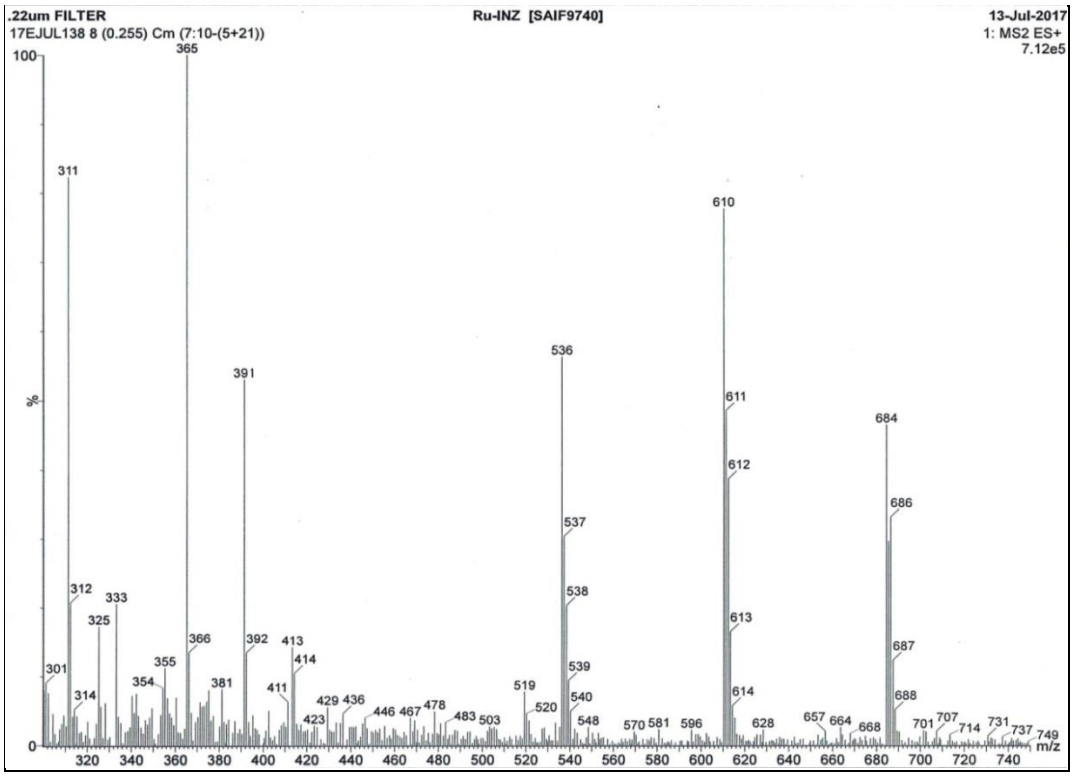
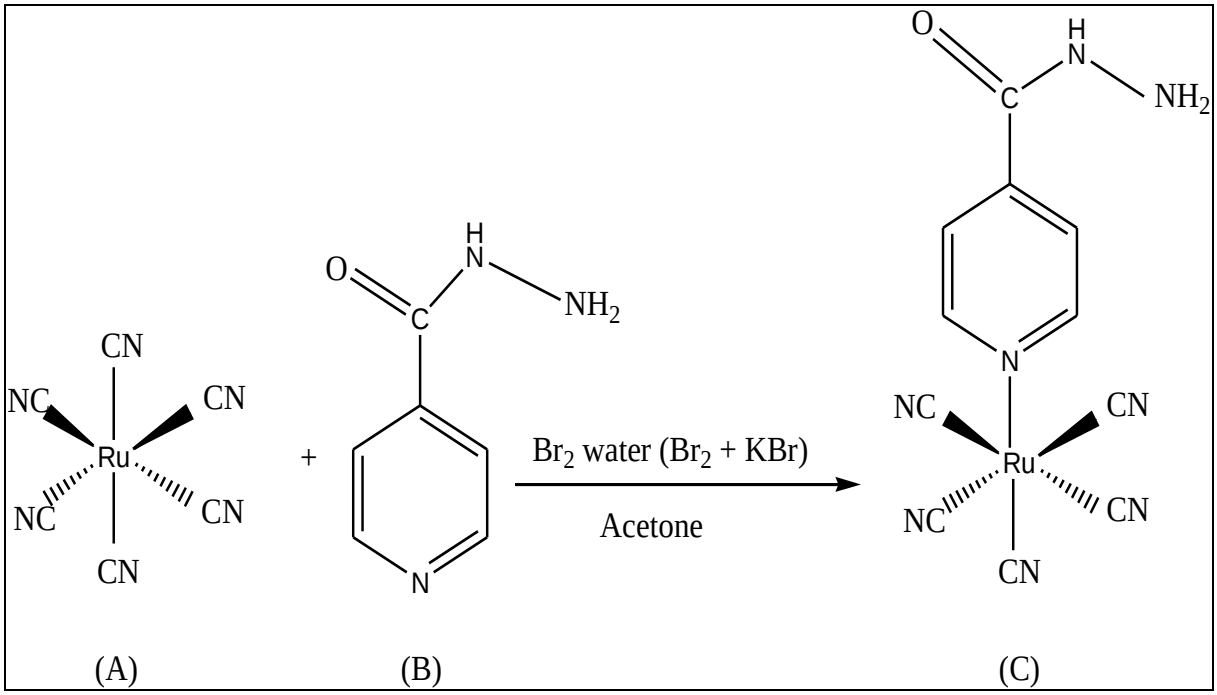


Figure S3 Experimental mass spectrum of the complex.



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Chemical Shifts (δ/ ppm)	**Assignment**
8.620	Benzene ring protons nearer to heterocyclic nitrogen atom
7.639	Benzene ring protons
	NH and NH_2 protons, being D_2O exchangeable protons, do not appear in the spectrum

Table S2 Effect of $[Ru(CN)_5H_2O^{3-}]$ under conditions [INH] = 4 x 10^{-3} M, pH = 4.0 ± 0.02, Ionic Strength = 0.2 M ($NaClO_4$) and Temperature = 25.0 ± 0.01˚C.

$[Ru(CN)_5H_2O^{3-}]$ x 10^4 , M	**k_{obs} x 10^4 , S^{-1}**
4	0.38
3.5	0.2
3	0.38
2.5	0.29
2	1.11