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Figure S2. ^1H NMR spectra of N-octylacetamide made in CDCl_3

Figure S3. ^{13}C NMR spectra of N-octylacetamide made in CDCl_3

Figure S4. Images of coloured complex in organic extract where 1st vial is blank [Bi (III) absent], 2nd vial is Bi (III)-I⁻ complex and 3rd vial is Bi (III)-I⁻-N-OAA complex

Figure S1.

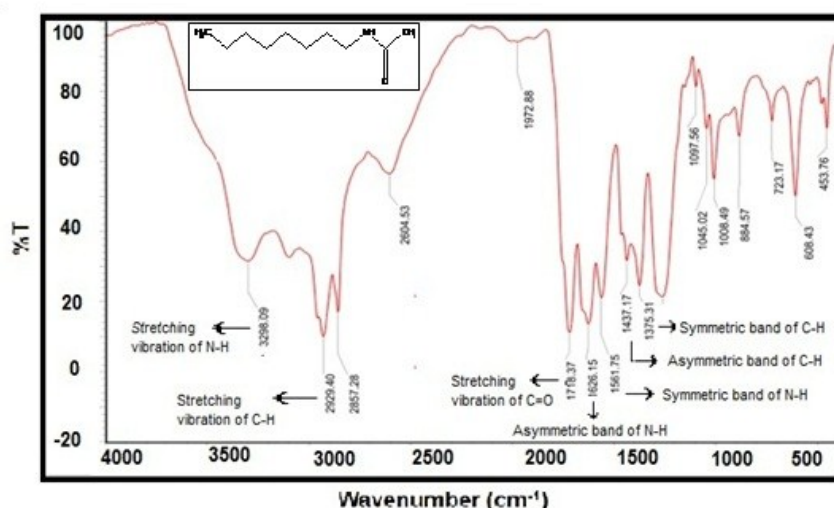


Figure S2.

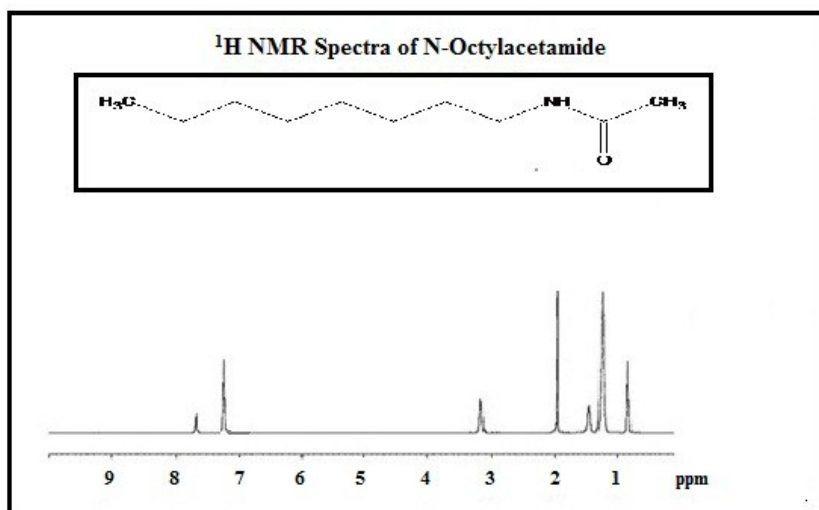


Figure S3.

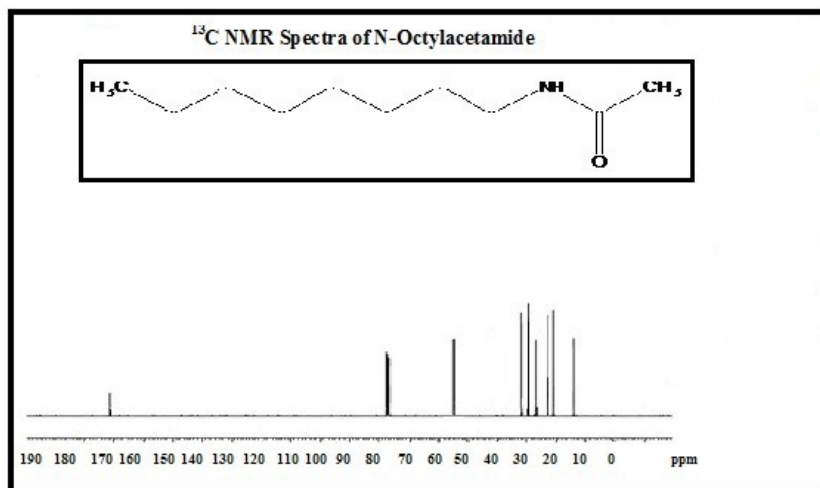


Figure S4.

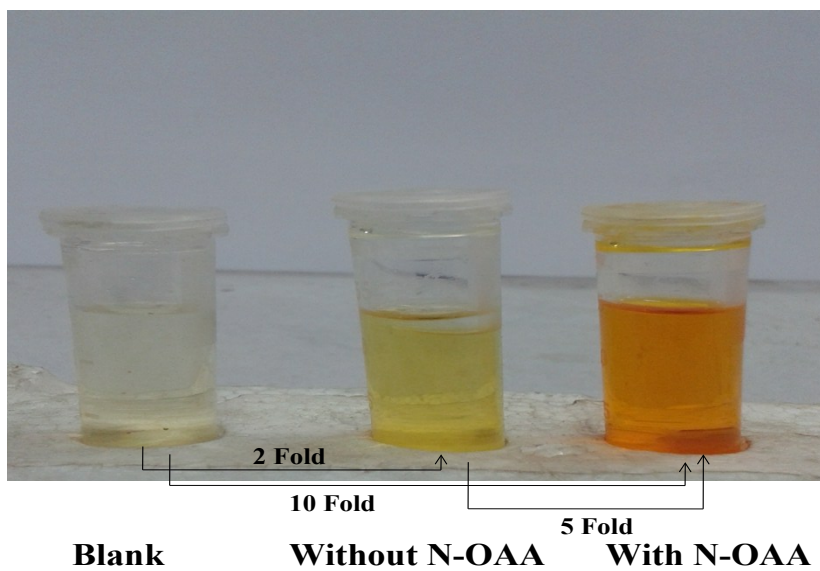


Table S1. FTIR Characterization details of N-OAA.

Table S2. Effect of different amides at λ_{max} 365 nm.

Table S3. Statistical data calculation.

Table S1

S. No.	Functional Group	Band(cm⁻¹)
1	Amide Carbonyl(C=O)	1718.37
2	Stretching Vibration of N-H	3298.09
3	Symmetric /Asymmetric band of N-H	1561.75-1626.15
4	Stretching Vibration of C-H	2829.40
5	Symmetric/Asymmetric band of C-H	1375.31-1437.17

Table S2

S. no.	Amides	Molecular Formula	Molar Absorptivity ϵ (L/mol/cm)
1.	N-butylacetamide	C₄H₉NHCOCH₃	2.0X10³
2.	N-phenylacetamide	C₆H₅NHCOCH₃	1.7X10⁴
3.	N-hexylacetamide	C₆H₁₃NHCOCH₃	4.4X10³
4.	N-octylacetamide	C₈H₁₇NHCOCH₃	7.2X10⁵

Table S3

No. of determination	Concentration of Bi(III) $\mu\text{g/mL}$	Absorbance at $\lambda_{\text{max } 365\text{nm}}$	Statistical Data
6	1.0	0.342 0.347 0.352 0.341 0.350 0.343	Mean Abs.= 0.345 St. Dev.= 0.005 RSD= $\pm 1.44\%$ Dt. Limit=36.0 $\mu\text{g/L}$