Supporting informations

1. Experimental Details

Synthesis of $(C_8H_{17})_2NCOCH_2OCOCH_3$

To a solution of glacial acetic acid (5.8 gm , 0.097 mol) in 1,2- dichloroethane (100 mL), triethyl amine (10 gm, 0.099 mol) was added slowly with stirring. To this solution, $(C_8H_{17})_2NCOCH_2Cl$ (30 gm, 0.095 mol) and tetrabutyl ammonium bromide (200 mg, as a catalyst) was added and refluxed for 50 h. The solution was treated with 200 mL of 5% HCl, the organic phase was separated , dried over anhydrous Na_2SO_4 and filtered. This solution on slow evaporation yielded (28 gm, 87.5% based on ester) pale yellow liquid. IR(nujol, ν cm^{-1}) : 1753(CO, ester); 1668 (CO, amide); ^1H NMR ($CDCl_3$, 300 MHz, δ in ppm) : 0.88 (m, CH_3); 1.28 (br, CH_2) ; 1.55(m, CH_2); 2.1 (s, CH_3, ester) ; 3.14 (t, NCH_2); 3.3 (t, NCH_2); 4.7 (s, OCH_2CO). (Spectra shows that the product is a mixture of acetate ester and final hydroxo compound).

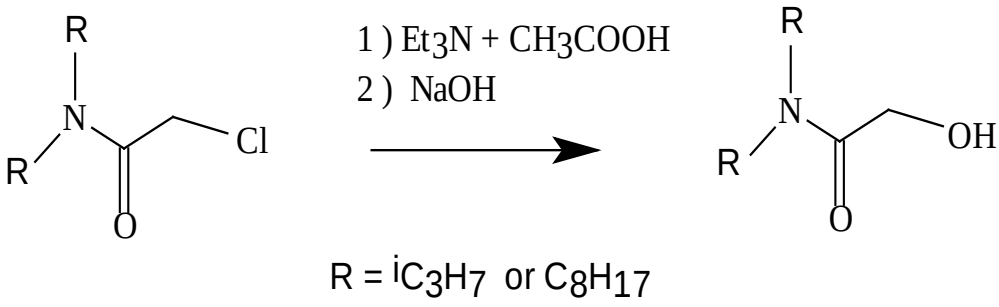
Synthesis of $(C_8H_{17})_2NCOCH_2OH$

To a solution of NaOH (3.4 gm, 0.085 mol) in methanol, the above mixture (27 gm) was added slowly with stirring. The solution was allowed to stir for an hour, refluxed for 30 min and treated with 200 mL of 10% HCl. The organic phase was extracted with di-isopropyl ether, dried over anhydrous Na_2SO_4 and filtered. This solution on evaporation yielded (22 gm, 95% based on ester) the desired product. IR(nujol, ν cm^{-1}) : 3411 (br, OH); 1652 (CO). ^1H NMR ($CDCl_3$, 300 MHz, δ in ppm) : 0.84 (br, 6H, CH_3); 1.25 (br, 20H, CH_2) ; 1.5 (br, 4H, CH_2); 3.01(t, 2H, NCH_2) ; 3.32 (t, 2H, NCH_2) ; 3.49 (br, 1H, OH); 4.10(s, 2H, CO-CH_2-O). ES-MS(CH_2Cl_2, m/z) : 300 (LH^+, 100%); 322(L+Na, 22%) ; 621 (2L+Na, 18%)

Synthesis of *$(^iC_3H_7)_2NCOCH_2OH$*

This was prepared similarly to the above reported ligand by taking $(^iC_3H_7)_2NCOCH_2Cl$. The final product was obtained as a off white crystalline solid in 85% yield. IR(nujol, ν cm^{-1}) : 3353

(br, OH); 1649 (CO). ^{1}H NMR ($CDCl_3$, 500 MHz, δ in ppm) : 1.2 (d, 6H, CH_3); 1.425(d, 6H, CH_3) ; 3.5 (m, 1H, CH); 3.6(m, 1H, CH) ; 3.92 (t, 1H, OH); 4.09(s, 2H, CO-CH_2-O).



Scheme 1 : Synthesis of N, N'- alkyl, α- hydroxy acetamide ligand

Synthesis of $La(NO_3)_3$ + $(^iC_3H_7)_2NCOCH_2OH$ compound

To a solution of $(^iC_3H_7)_2NCOCH_2OH$ (370 mg, 2.3 mmol) in CH_2Cl_2 , solid $La(NO_3)_3.6H_2O$ (200 mg, 0.46 mmol) was added and stirred (about 10 min) till all lanthanum salts dissolve to give a clear solution. The solution on further stirring deposited white powder and the whole solution was allowed to stir for further 3hr. The resultant powder was filtered and washed with CH_2Cl_2 (about 5 ml) and dried. This powder was recrystallized from acetone/ $ClCH_2CH_2Cl$ mixture to give crystalline solid in 90% yield. IR(nujol, ν cm^{-1}) : 3322 (br, OH); 1606 (CO). ^{1}H NMR (CD_3OD, 500 MHz, δ in ppm) : 1.22 (d, 6H, CH_3); 1.40(d, 6H, CH_3) ; 3.61 (m, 1H, CH); 3.72(m, 1H, CH) ; 4.47 (s, 2H, CO-CH_2-O).

Synthesis of $Sm(NO_3)_3$ + $(^iC_3H_7)_2NCOCH_2OH$ compound

This was prepared similar to lanthanum compound by taking $(^iC_3H_7)_2NCOCH_2OH$ (370 mg, 2.3 mmol) and $Sm(NO_3)_3$.$6H_2O$ (200 mg, 0.45 mmol) in 80% yield. IR(nujol, ν cm^{-1}) : 3437 - 3000 (br, OH); 1603 (CO). ^{1}H NMR (CD_3COCD_3, 300 MHz, δ in ppm) : 1.34(d, 6H, CH_3); 1.57(d, 6H, CH_3) ; 3.81 (m, 1H, CH); 3.98(m, 1H, CH) ; 4.6 (s, 2H, CO-CH_2-O).

Synthesis of $Eu(NO_3)_3$ + $(^iC_3H_7)_2NCOCH_2OH$ compound

This was prepared similar to lanthanum compound by taking $(^{i}C_3H_7)_2NCOCH_2OH$ (370 mg, 2.3 mmol) and $Eu(NO_3)_3 .6H_2O$ (200 mg, 0.45 mmol) in 85% yield. IR(nujol, ν cm^{-1}) : 3437 - 3000 (br, OH); 1613 (CO). ^{1}H NMR (CD_3COCD_3, 300 MHz, δ in ppm) : 0.245(br); 0.5(br) ; 2.65 (br): (broad peaks due to paramagnetic nature).

Solvent extraction experiment

Distribution studies were performed by using a 0.2M solution of $(C_8H_{17})_2NCOCH_2OH$ or $(C_8H_{17})_2NCOCH_2Cl$ in dodecane with the aqueous phases spiked with ^{233}U, ^{239}Pu, ^{241}Am, ^{152,154}Eu, ^{137}Cs or ^{88,89}Sr tracer in a thermostated water bath for 30 min at 25 ± 0.1 C. Assay of organic and aqueous phases were done in duplicate by alpha counting using dioxane based scintillator for ^{233}U and ^{239}Pu and gamma counting directly for ^{241}Am, ^{152,154} Eu, ^{137}Cs and ^{85,89}Sr. The distribution ratio (D) is defined as the ratio of the concentration of metal ion in organic phase to that of the aqueous phase.

Crystallography

Crystal data for $C_{24}H_{52}N_6O_{16}Sm$ and $C_{24}H_{53}EuN_6O_{16}$ were measured on a Agilent SuperNova system equipped with Titan CCD detector at 293(2) K using CuK_α radiation (λ = 1.5418 Å). The crystals were positioned at 101 mm from the CCD. 1481 and 1486 frames were measured respectively for Sm and Eu compounds with a counting time of 1 s. Data analysis were carried out with the CrysAlis program[1] . The structure were solved using direct methods with the Shelxs97 program [2] . All non- hydrogen atoms were refined with anisotropic thermal parameters. The hydrogen atoms bonded to carbon atoms were included in the geometric positions and given thermal parameters equivalent to 1.2 times those of the atoms to which they attached. Empirical absorption corrections were carried out using the ABSPACK program [3] . The structures were refined to convergence on F^2 using Shelxl972[b]. Selected crystallographic data and important bond distances and angles are given below .

1. CrysAlis, (**2006**) Oxford Diffraction Ltd, Abingdon, U. K .
2. Sheldrick, G. M. Shelxs97 and Shelxl97, program for crystallographic

solution and refinement, *Acta Crystallogr*. **2008**, A64, 112 -122.

3. ABSPACK (**2005**) Oxford Diffraction Ltd, Oxford, U. K.

Crystal data for $C_{24}H_{52}N_6O_{16}Sm$

Monoclinic, space group $P2_1/c$ (no. 14), a = 10.9512(4) Å, b = 27.0203(9) Å, c = 13.0160(4) Å, β = 101.549(3)°, V = 3773.5(2) Å^3, Z = 4, T = 293(2) K, μ(Cu Kα) = 12.306 mm^{-1}, *Dcalc* = 1.463 g/mm^3, 23664 reflections measured (6.542 ≤ 2Θ ≤ 140.212), 7093 unique (R_{int} = 0.1403) which were used in all calculations. The final R_1 was 0.0774(I >2σ(I)) and wR_2 was 0.2243 (all data). CCDC-977001.

Crystal Data for $C_{24}H_{53}EuN_6O_{16}$

Monoclinic, space group $P2_1/c$ (no. 14), a = 10.9253(2) Å, b = 26.9890(5) Å, c = 13.0207(3) Å, β = 101.5301(19)°, V = 3761.85(14) Å^3, Z = 4, T = 293(2) K, μ(Cu Kα) = 12.557 mm^{-1}, *Dcalc* = 1.472 g/mm^3, 23625 reflections measured (6.55 ≤ 2Θ ≤ 140.066), 7093 unique (R_{int} = 0.0843) which were used in all calculations. The final R_1 was 0.0656 (I >2σ(I)) and wR_2 was 0.1851 (all data). CCDC-977002

Table 1. Important bond lengths (Å) and agles (°) for $C_{24}H_{52}N_6O_{16}Eu$ and $C_{24}H_{52}N_6O_{16}Sm$

	Eu	Sm
M – O1	2.422(5)	2.430(8)
M – O2	2.380(4)	2.458(7)
M – O3	2.451(4)	2.401(6)
M – O4	2.368(5)	2.398(7)
M – O5	2.514(5)	2.527(7)
M – O6	2.457(5)	2.409(7)
M – O7	2.400(5)	2.464(7)
M – O8	2.500(5)	2.531(7)
M – O9	2.531(5)	2.535(8)
O9 – M – O8	50.2(2)	50.41(16)
O2 – M – O3	63.2(2)	63.18(15)
O4 – M – O5	62.4(2)	63.02(14)
O6 – M – O7	62.6(2)	62.49(15)

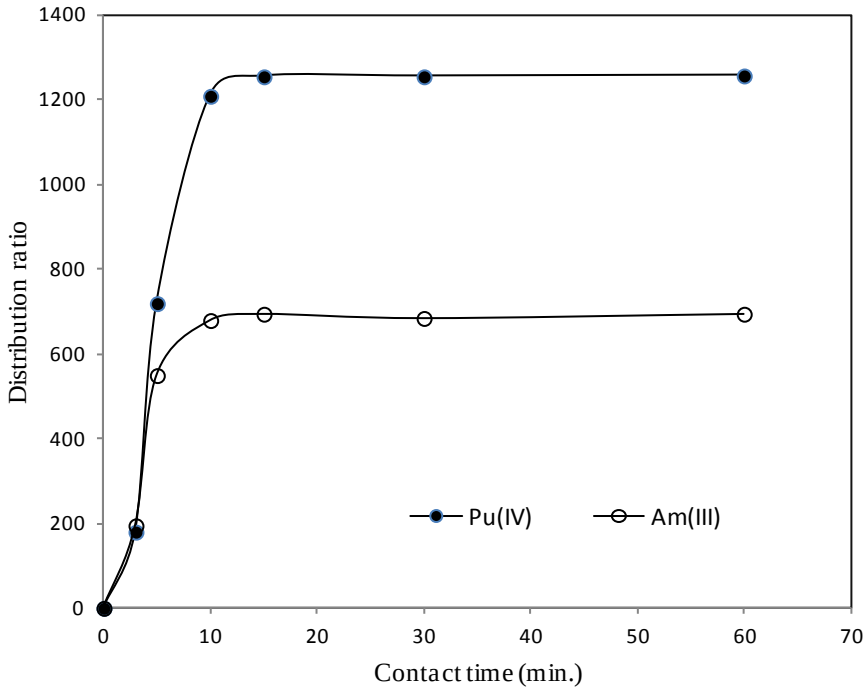


Fig. 1: Distribution ratios of Pu and Am as a function of time

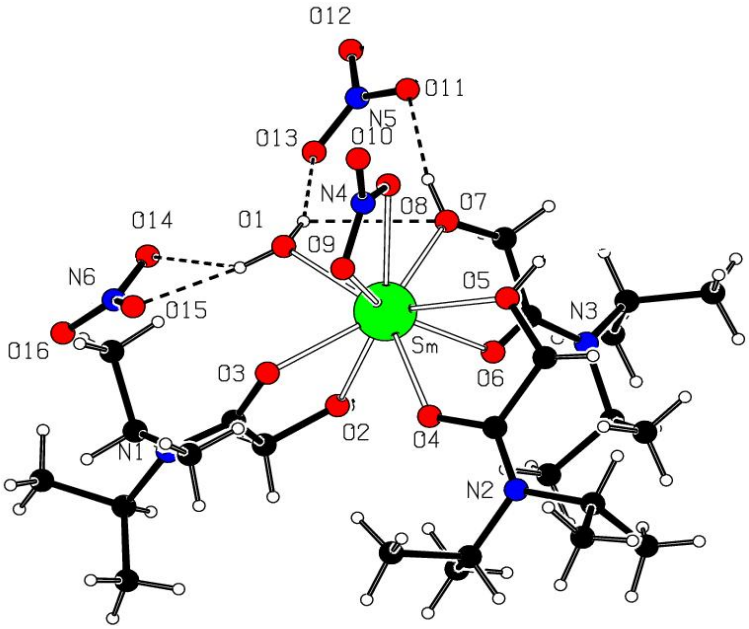


Fig 3 : Structure of $[SmL_3(NO_3)(H_2O)][NO_3]_2$ (L =$(^iC_3H_7)_2NCOCH_2OH$)

2. Solvent Extraction data

Table 2. Extraction of Pu(IV) at different concentration of nitric acid

Extraction Parameters : Aqueous feed: Pu(IV) spiked HNO_3 solution at different acidity
Conc. of Extractant: 0.20M amide in n-dodecane
Organic to aqueous phase ratio: 1:1, Volume of each phase: 2 mL,
Contact Time: 30 min.

Conc. of HNO_3 in Feed (M)	α-activity of Pu in Feed (cpm for 50µL)	α-activity of Pu in Raffinate (cpm for 50µL)	Extraction (%)	$D_{Pu(IV)}$
0.50	44250	2601	94.12	16.0
1.00	44005	1630	96.30	26.0
2.00	43010	251	99.42	170
3.00	43901	36	99.92	1218
5.00	43595	32	99.93	1361
7.00	43270	35	99.92	1235
10.00	43308	34	99.92	1302

Table 3. Extraction of Am(III) at different concentration of nitric acid

Extraction Parameters : Aqueous feed: ^{241}Am spiked HNO_3 solution at different acidity
Conc. of Extractant: 0.2M amide in n-dodecane
Organic to aqueous phase ratio: 1:1, Volume of each phase: 2 mL,
Contact Time: 30 min.

Conc. of HNO_3 in Feed (M)	^{241}Am γ activity in Feed (cpm for 100µL)	^{241}Am γ activity in Raffinate (cpm for 100µL)	Extraction (%)	$D_{Am(III)}$
0.50	17407	14994	13.86	0.16
1.00	17475	13734	21.41	0.28
2.00	17433	2735	84.31	5.37
3.00	17451	675	99.31	24.8
4.00	17450	90	99.5	193
5.00	17445	26	99.85	669.
7.00	17424	22	99.87	791
10.00	17469	28	99.84	623

Table 4. Extraction of Sr at different concentration of nitric acid

Extraction Parameters: Aqueous feed: $^{85+89}$Sr spiked HNO_3 solution at different acidity
Conc. of Extractant: 0.2M amide in n-dodecane
Organic to aqueous phase ratio: 1:1, Volume of each phase: 2 mL,
Contact Time: 30 min.

Conc. of HNO_3 in Feed (M)	$^{85+89}$Sr γ activity in Feed (cpm per mL)	$^{85+89}$Sr γ activity in Raffinate (cpm per mL)	Extraction (%)	$D_{Sr(II)}$
0.50	2276	2287	Nil	-
1.00	4259	4240	<0.5%	-
2.00	8128	8164	Nil	-
3.40	14861	14880	Nil	-

Table 5. Extraction of Uranium at different concentration of nitric acid

Extraction Parameters : Aqueous feed: ^{233}U spiked HNO_3 solution at different acidity
Conc. of Extractant: 0.2M amide in n-dodecane
Organic to aqueous phase ratio: 1:1, Volume of each phase: 2 mL,
Contact Time: 30 min.

Conc. of HNO_3 in Feed (M)	^{233}U γ activity in Feed (cpm for 20 µL)	^{233}U γ activity in Raffinate (cpm for 20µL)	Extraction (%)	$D_{U(IV)}$
0.50	24492	17590	28.18	0.39
1.00	24475	16230	33.69	0.51
2.00	24442	14690	39.90	0.66
3.00	24436	6306	74.19	2.88
4.00	24498	2184	91.08	10.22
5.00	24425	1010	95.86	23.18
7.00	24444	600	97.55	39.74
10.00	24460	608	97.51	39.23

Table 6. Extraction of Europium at different concentration of nitric acid

Extraction Parameters

Aqueous feed: $^{152+154}$Eu spiked HNO_3 solution at different acidity
Conc. of Extractant: 0.2M amide in n-dodecane
Organic to aqueous phase ratio: 1:1, Volume of each phase: 2 mL,
Contact Time: 30 min.

Conc. of HNO_3 in Feed (M)	$^{152+154}$Eu γ activity in Feed (cpm for 50 µL)	$^{152+154}$Eu γ activity in Raffinate (cpm for 50µL)	Extraction (%)	$D_{Eu(IV)}$
0.50	24830	24815	0.06	0.0006
1.00	24880	23120	7.0	0.075
2.00	24882	12453	49.95	0.99
3.00	24896	978	96.07	24.4
4.00	24890	350	98.6	70.1
5.00	24870	155	99.38	159.5
7.00	24844	128	99.48	193.1
10.00	24860	102	99.59	242.7

Table 7. Extraction of Am at different concentration of Extractant

Extraction Parameters

Aqueous feed: ^{241}Am spiked HNO_3 solution at 3.0M
Conc. of Extractant: Varying conc. 0.025-0.5M amide in n-dodecane
Organic to aqueous phase ratio: 1:1, Volume of each phase: 2 mL,
Contact Time: 30 min.

[Amide], M	**Mean D**
0.025	7.86×10^{-5}
0.05	0.00374
0.1	0.298
0.2	24.2

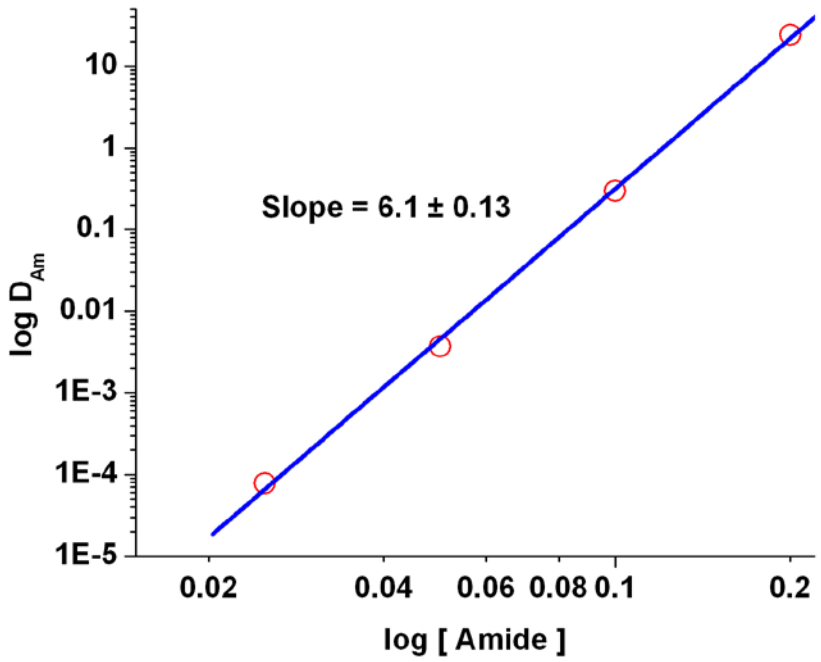


Fig 5. Log D_{Am} Vs log [amide]

Table 8: Variation of D Vs. [NO_3^-] for Am(III) ; Amide = 0.2 M in dodecane

[NO_3-], M	Mean D
0.5	0.00292
1.0	0.0106
2.0	0.0457
3.0	0.1692
5.0	1.136

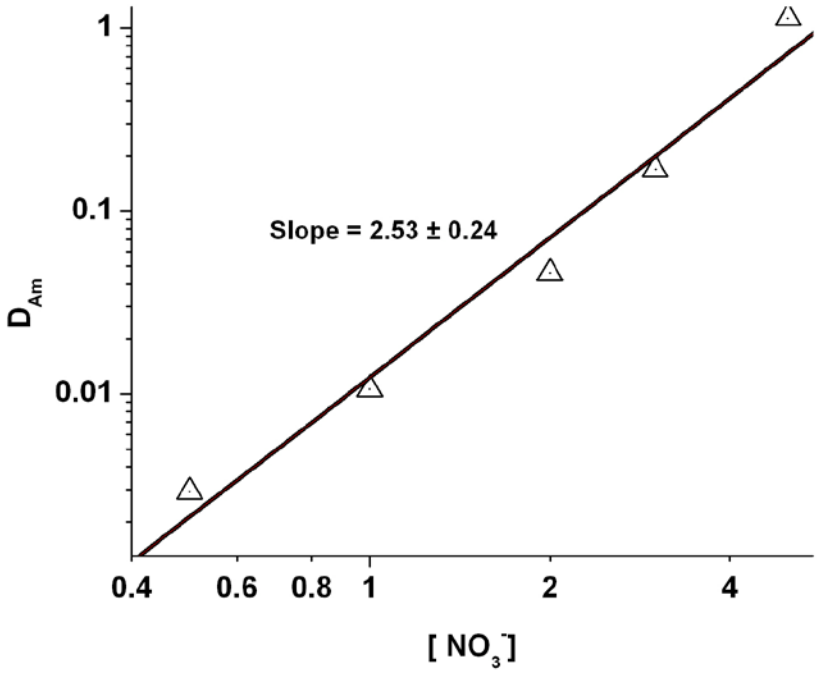


Fig 6. Log D_{Am} Vs log $[NO_3]^-$

Table 9. Extraction of Fission products and Alpha emitter from 100 times diluted Actual High Liquid Waste(HLW) solution using Solvent

***Extraction Parameters*:** Aqueous feed: 100 times diluted HAW-1 solution in 4.0M $HN0_3$
Conc. of Extractant: 0.2M amide in n-dodecane
Organic to aqueous phase ratio: 1:1, Volume of each phase: 2 mL,
Contact Time: 30 min.

Conc. of HNO_3 in Feed (M)		Alpha α mg/L	Beta β mCi/L	Gamma γ mCi/L	^{144}Ce mCi/L	^{106}Ru mCi/L	^{137}Cs mCi/L	^{125}Sb µCi/L
4.00	Feed	98.9	56.81	20.11	10.21	5.51	8.53	2.75 µCi/L
	Raffinate-1 (Aqueous)	<0.2	20.91	10.54	22.00 **µCi**/L	5.46	8.43	-
	Raffinate-2 (Aqueous)	<0.2	19.88	10.32	31.68 **µCi**/L	5.23	8.18	-

	Raffinate-3 (Aqueous)	<0.2	19.78	10.33	63.37 **µCi**/L	5.09	8.22	-

Table 10. Extraction of Fission products and Alpha emitter from 100 times diluted Actual High Active Waste-1(HAW-1) solution using Solvent

Extraction Parameters **:** Aqueous feed: 100 times diluted HAW-1 solution in 4.0M $HN0_3$

Conc. of Extractant: 0.2M amide in n-dodecane
Organic to aqueous phase ratio: 1:1, Volume of each phase: 4 mL,
Contact Time: 30 min.

Conc. of HNO_3 in Feed (M)		Alpha α mg/L	Beta β mCi/L	Gamma γ mCi/L	^{144}Ce mCi/L	^{106}Ru mCi/L	^{137}Cs mCi/L	^{125}Sb µCi/L	^{95}Nb µCi/L
4.00	Feed	98.95	57.71	20.15	10.21	5.66	8.43	2.45 µCi/L	13.78 µCi/L
	Raffinate-1 (Aqueous)	<0.2	20.83	10.43	22.00 µCi/L	5.58	8.40	-	-
	Loaded Organic	98.7	36.84	9.57	10.2	214 **µCi**/L	-	1.94 *µCi*/L	11.4 **µCi**/L

Table 11. Stripping of Fission products and Alpha emitter from Loaded Organic Solvent using 0.5M Nitric acid

Extraction Parameters

Feed: Loaded Organic ; Strippant: 0.5M HNO_3
Conc. of Extractant: 0.2M amide in n-dodecane
Organic to aqueous phase ratio: 1:1, Volume of each phase: 1 mL,
Contact Time: 30 min.

	Alpha α mg/L	Beta β mCi/L	Gamma γ mCi/L	^{144}Ce mCi/L	^{106}Ru mCi/L	^{137}Cs mCi/L	^{125}Sb µCi/L	^{95}Nb µCi/L
Feed (Loaded Organic)	98.7	36.84	9.57	10.39	214 µCi/L	-	1.94 µCi/L	11.4 µCi/L
Raffinate-1 (Aqueous Phase)	98.5	-	9.35	9.63	14.9 µCi/L	-	1.92 µCi/L	6.28 µCi/L

Organic Phase	<0.2	-	0.12	89.0 µCi/L	189 µCi/L	-	0.02 µCi/L	5.1 µCi/L

Table 12. Stripping of Fission products and Alpha emitter from Loaded Organic Solvent using 0.2M Oxalic acid in 0.5M Nitric acid

Extraction Parameters

Feed: Loaded Organic ; Strippant: 0.2M Oxalic acid in 0.5M Nitric acid
Conc. of Extractant: 0.2M amide in n-dodecane
Organic to aqueous phase ratio: 1:1, Volume of each phase: 1mL,
Contact Time: 30 min.

	Alpha α mg/L	Beta β mCi/L	Gamma γ mCi/L	^{144}Ce mCi/L	^{106}Ru µCi/L	^{137}Cs mCi/L	^{125}Sb µCi/L	^{95}Nb µCi/L
Feed (Loaded Organic)	92.33	28.84	9.57	10.39	214 µCi/L	-	1.94 µCi/L	11.4 µCi/L
Raffinate-1 (Aqueous Phase)	92.1	-	8.96	9.90	17.8 µCi/L	-	1.94 µCi/L	10.0 µCi/L
Organic Phase	<0.2	-	86.07 **µCi**/L	94.0 **µCi**/L	196 **µCi**/L	-	-	1.43 **µCi**/L

Extraction behaviour of ^{95}Zr and ^{95}Nb using Amide

Since the direct estimation of small activity of ^{95}Zr and ^{95}Nb by gamma spectrometry is difficult in diluted HLLW sample due to the presence of large activity of ^{137}Cs. Therefore, to study the extraction behavior of ^{95}Zr and ^{95}Nb, an experiment was carried out in which 100 times diluted actual HLLW solution was used as feed after depleting ^{137}Cs by granulated ammonium molybdo phosphate (AMP). Diluted HLLW was subjected to batch contact wherein about 5 mL of the 100 times diluted HLLW solution was contacted with ~200 mg of granulated AMP for about 4h. After contact, AMP was separated and the Cs depleted solution was used for ^{95}Zr and ^{95} Nb uptake studies Analysis of the solution showed ^{137}Cs removal above 98%. 2 mL of the ^{137}Cs depleted solution was contacted with 2 mL of 0.2M amide in n-dodecane for ~30 min. Phases were separated and analysed for ^{95}Zr and ^{95}Nb by gamma spectrometry. Percentage extraction was calculated using the activity values in feed and organic.

Table 13: Extraction behaviour of ^{95}Zr and ^{95}Nb

Extraction Parameters

Aqueous feed: Cs depleted 100 times diluted HLLW solution using granulated AMP in ~4.0M $HN0_3$

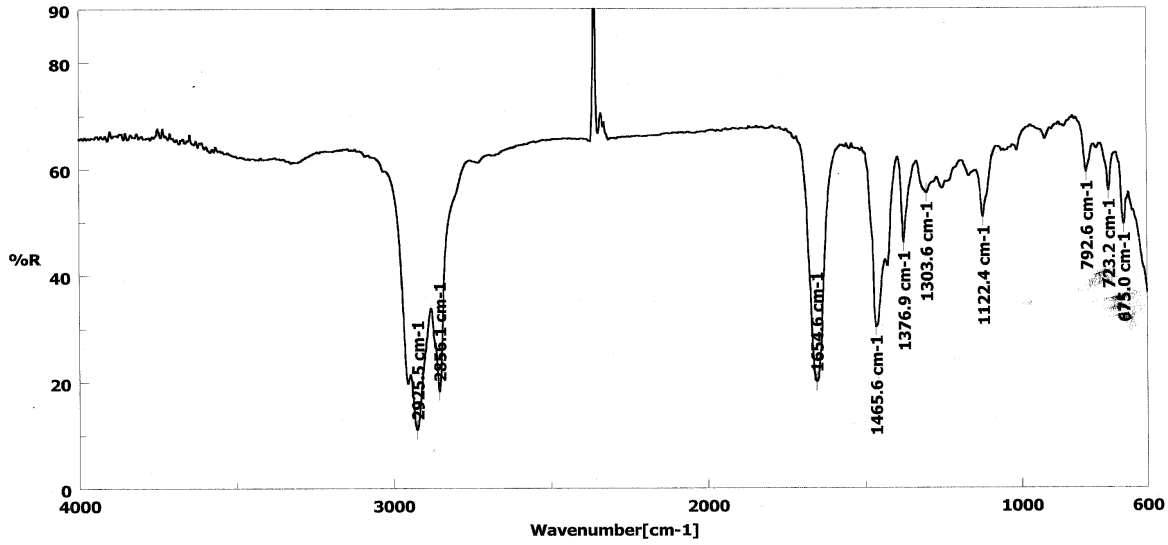
Conc. of Extractant: 0.2M amide in n-dodecane

Organic to aqueous phase ratio: 1:1, Volume of each phase: 2 mL, Contact Time: 30 min.

Conc. of HNO_3 in Feed	Phases	Uptake behavior			
		^{95}Zr		^{95}Nb	
		Activity	Extraction (%)	Activity	Extraction (%)
3.96M	Feed, mCi/L	0.400	87.50	0.042	47.62
	Raffinate, mCi/L	0.059		0.021	
	Organic, mCi/L	0.350		0.020	

Above experiment show that solvent extracts ~88% Zr and 48% Nb in single batch contact. Organic phase from extraction experiment was subjected to stripping studies using 0.2M oxalic acid containing 0.5M HNO_3. Lean organic phase showed <0.01 mCi/L and 0.001 mCi/L of Zr and Nb activity. This indicate that extracted Zr and Nb activity can be stripped using mixture of oxalic acid and nitric acid.

3. Spectral Details



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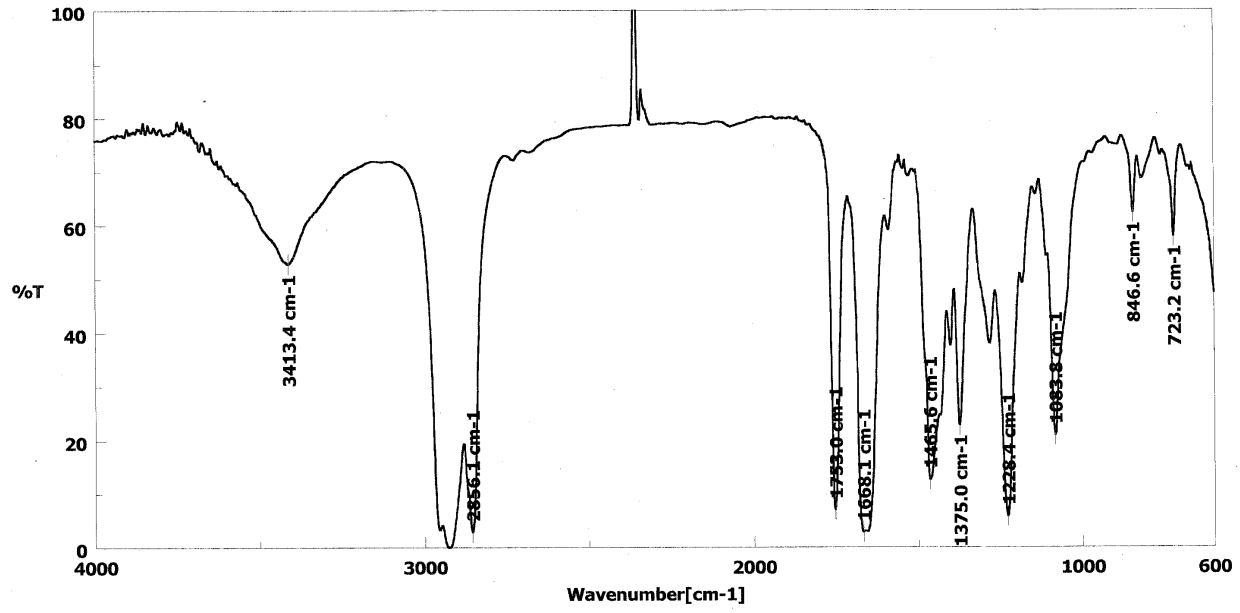
File Name	(C8H17)2NCOCH2Cl
Sample Name	TiO2 -1
Comment	Nujol

(C8H17)2NCOCH2Cl

S1 : IR spectrum of $(C_8H_{17})_2NCOCH_2Cl$



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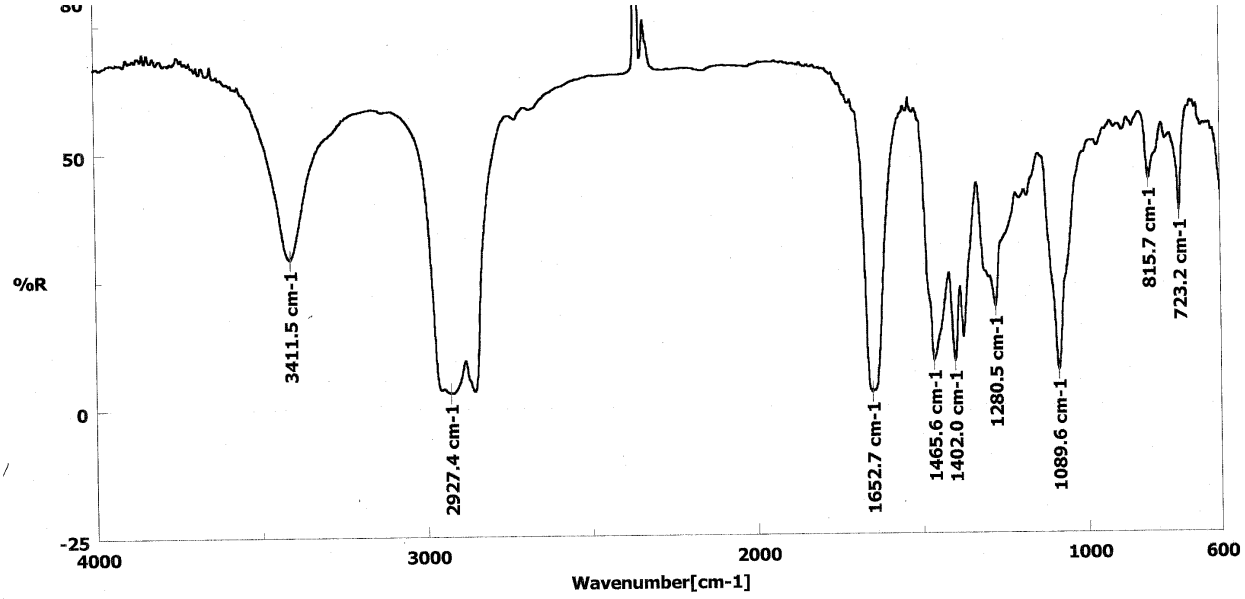
Sample Name	LiOH
Comment	Nujol

(C8H17)2NCOCH2OCOCH3

S2 : IR spectrum of $(C_8H_{17})_2NCOCH_2OCOCH_3$

(It is a mixture of intermediate $(C_8H_{17})_2NCOCH_2OCOCH_3$ and final product $(C_8H_{17})_2NCOCH_2OH$)



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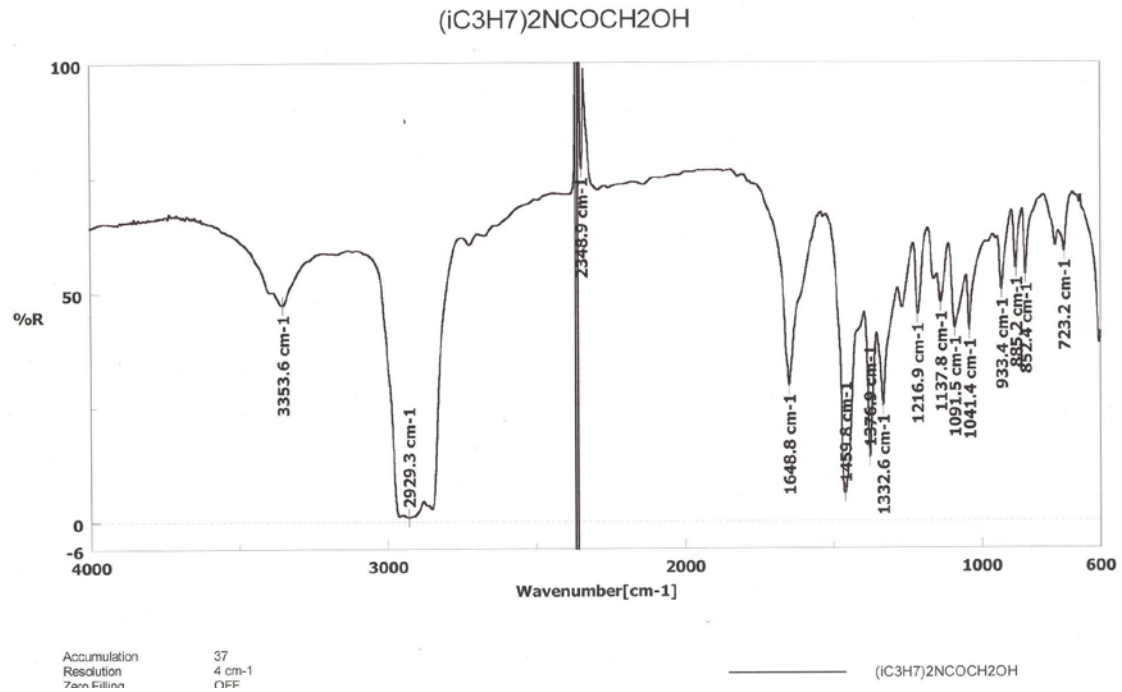
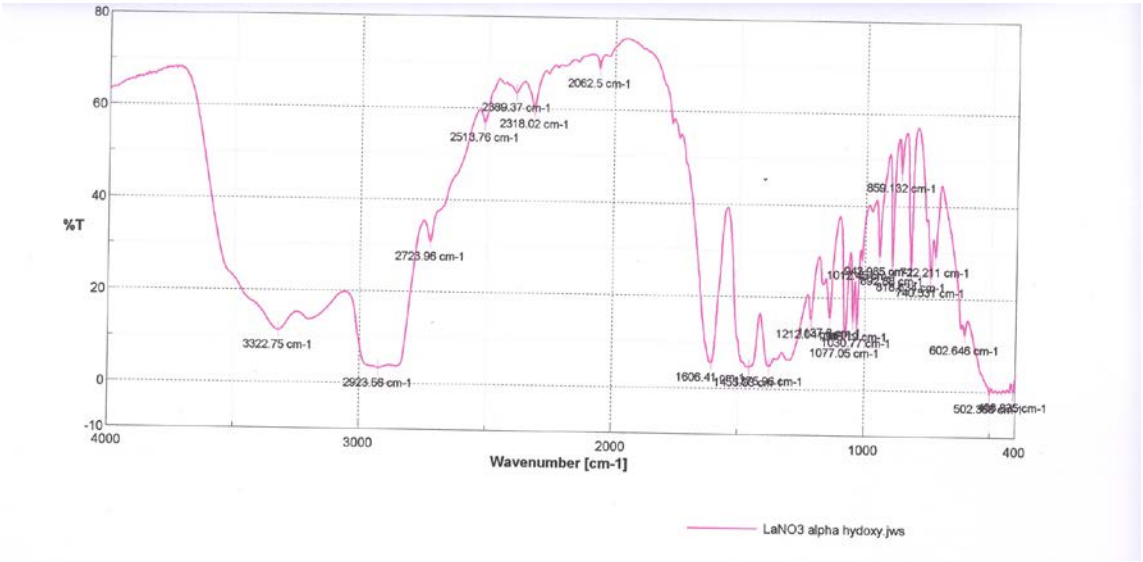
Update	1/1/00 0:14AM
Operator	Dr. S. Kannan
File Name.	(C8H17)2NCOCH2OH(31111)
Sample Name	Thorium Phospate
Comment	KBr

(C8H17)2NCOCH2OH(31111)

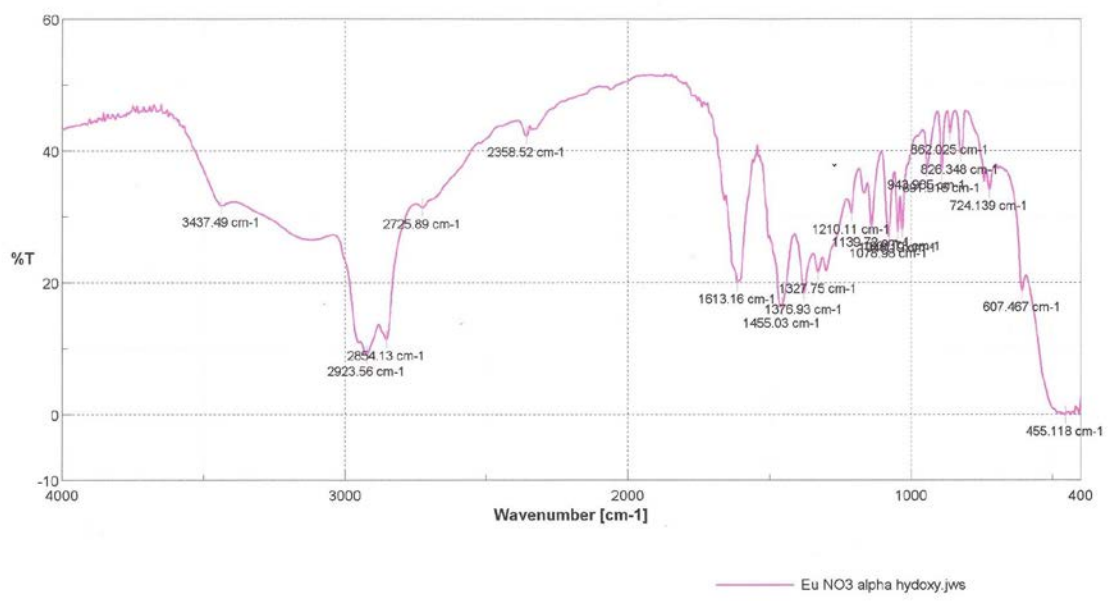
S3 : IR spectrum of $(C_8H_{17})_2NCOCH_2OH$



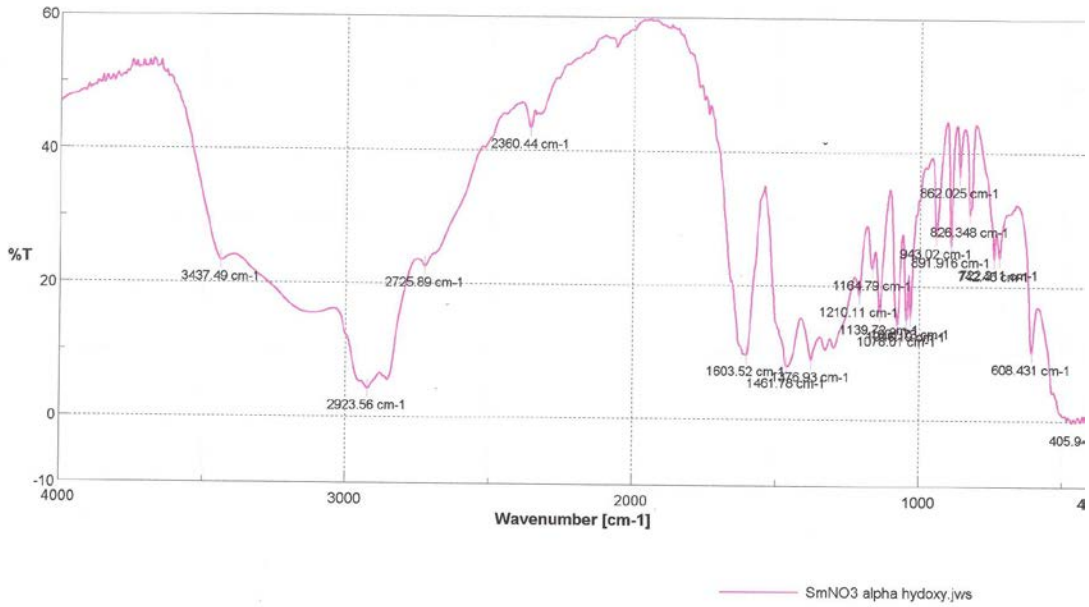
S4 : IR spectrum of $(^{i}C_3H_7)_2NCOCH_2OH$



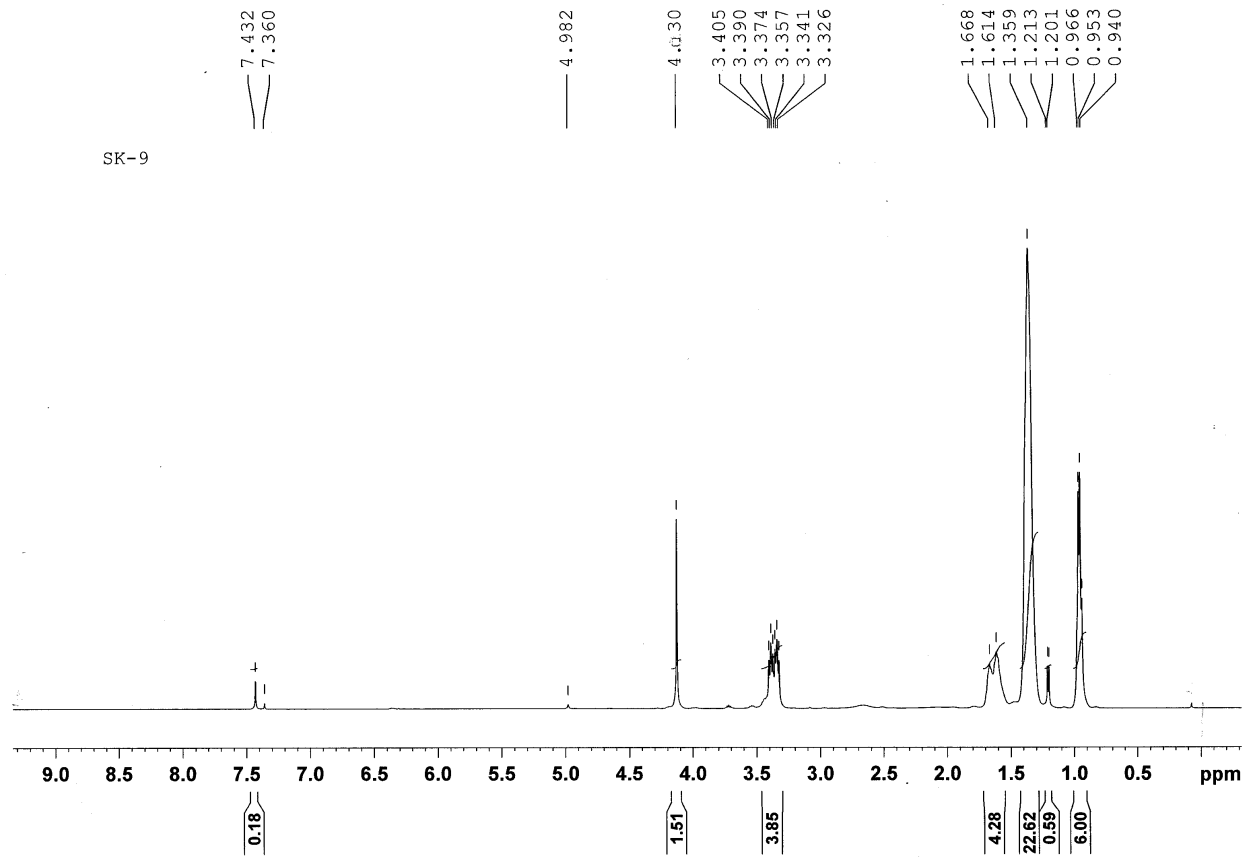
S5 : IR spectrum of $La(NO_3)_3$+ $(^{i}C_3H_7)_2NCOCH_2OH$ compound



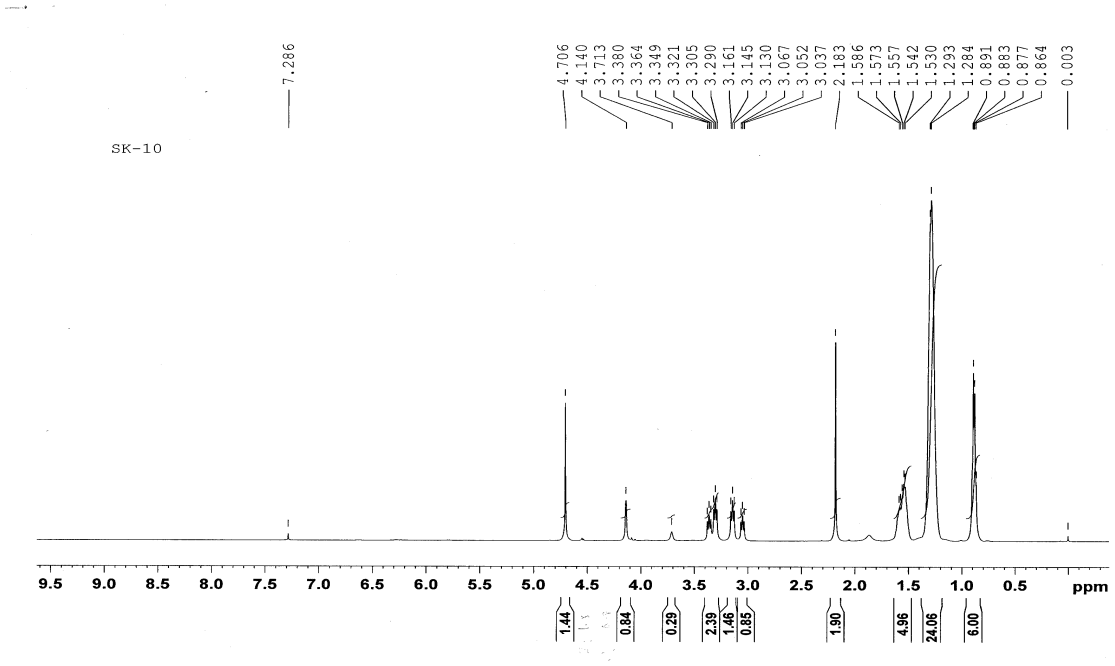
S6 : IR spectrum of $Eu(NO_3)_3$ + $(^iC_3H_7)_2NCOCH_2OH$ compound



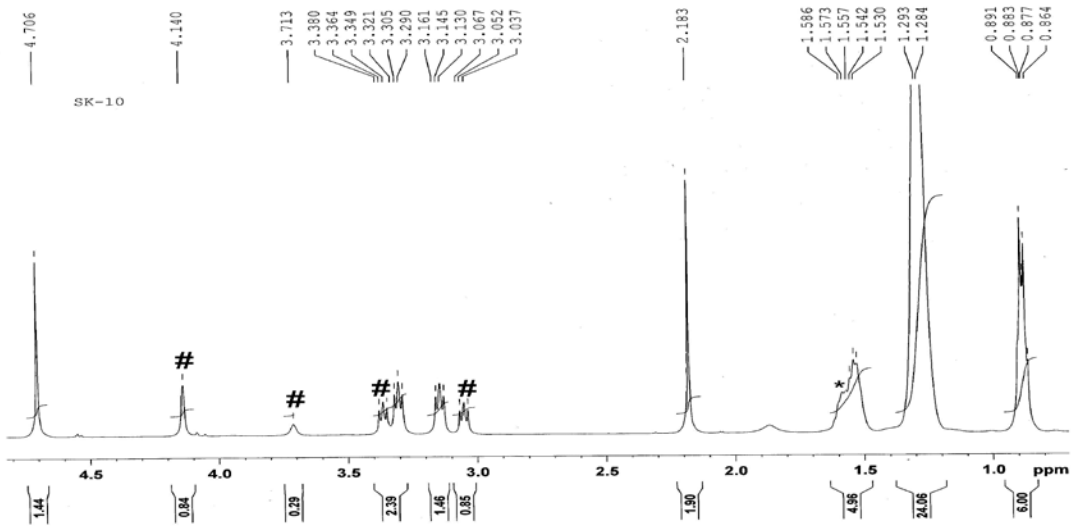
S7 : IR spectrum of $Sm(NO_3)_3$ + $(^iC_3H_7)_2NCOCH_2OH$ compound



S8 : ^{1}H NMR spectrum of $(C_8H_{17})_2NCOCH_2Cl$

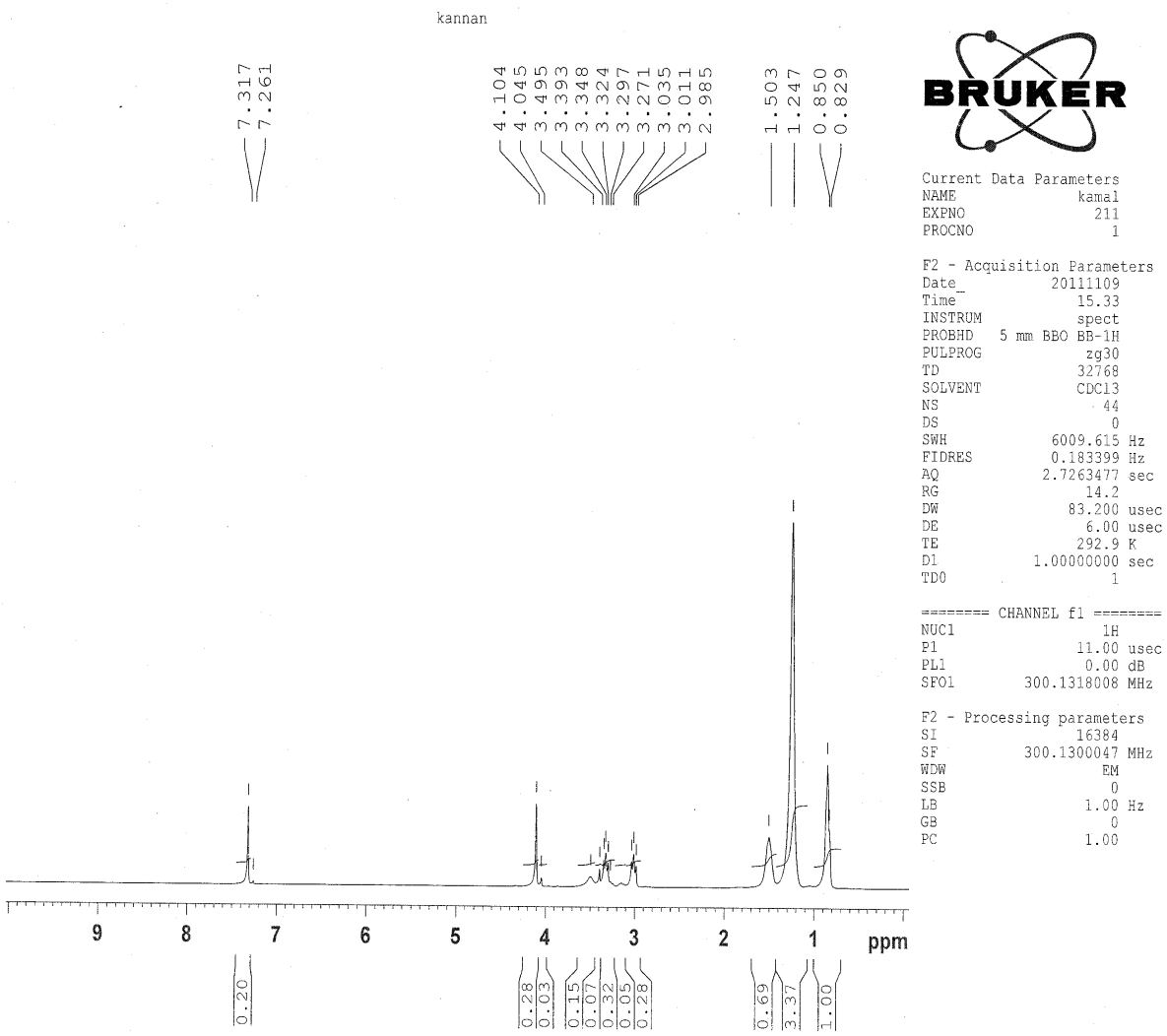


S9 : ^{1}H NMR spectrum of intermediate compound $(C_8H_{17})_2NCOCH_2OCOCH_3$

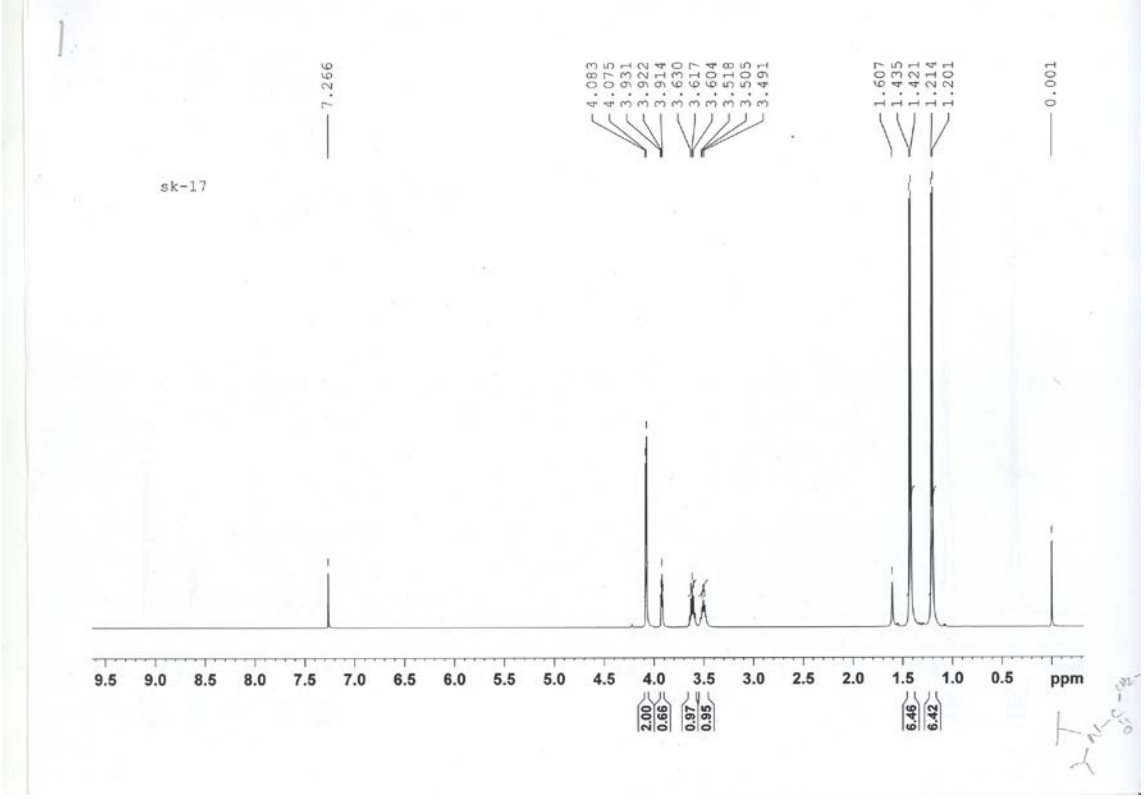


S10 :^{1}H NMR of intermediate compound :$(C_8H_{17})_2NCOCH_2OCOCH_3$ (expanded)

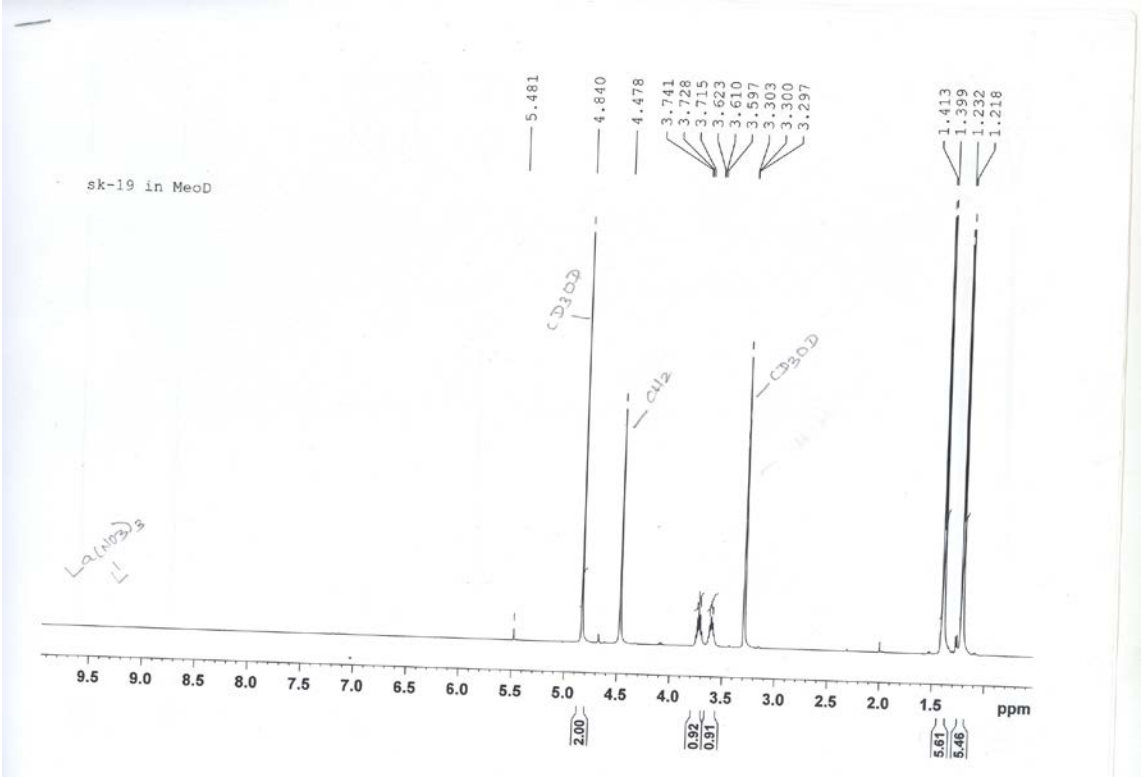
(# corresponds to the final product $(C_8H_{17})_2NCOCH_2OH$)



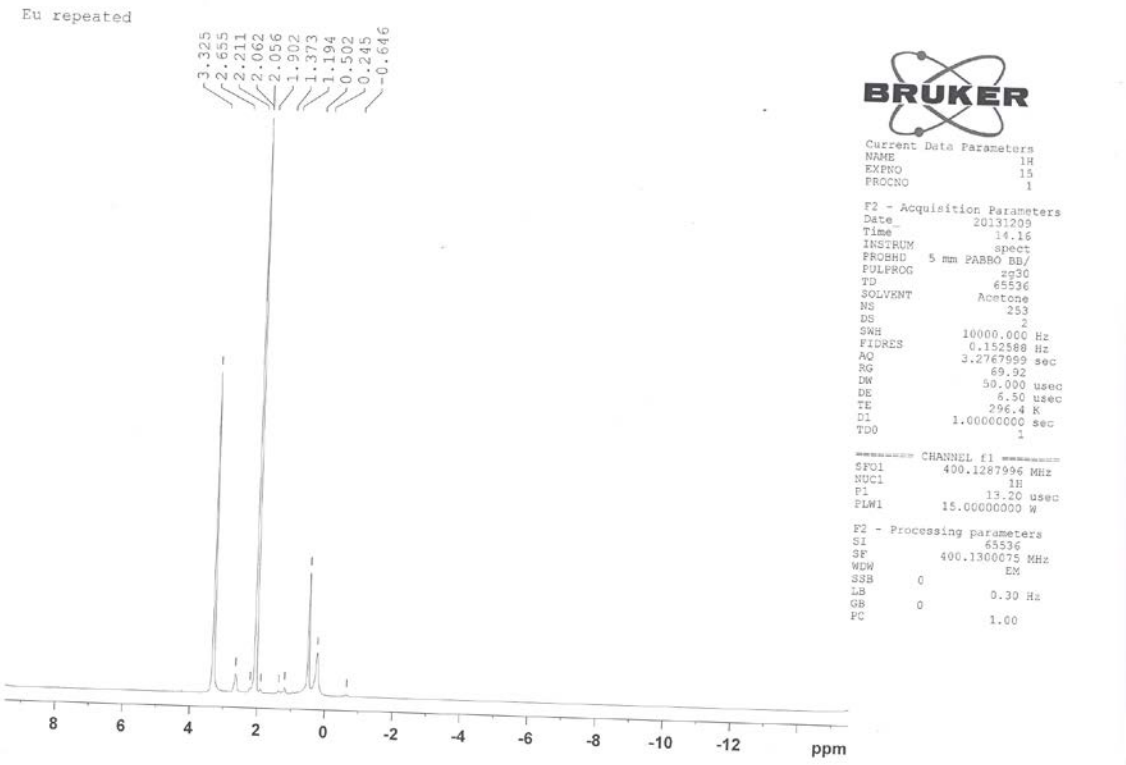
S11 : ^{1}H NMR spectrum of : $(C_8H_{17})_2NCOCH_2OH$



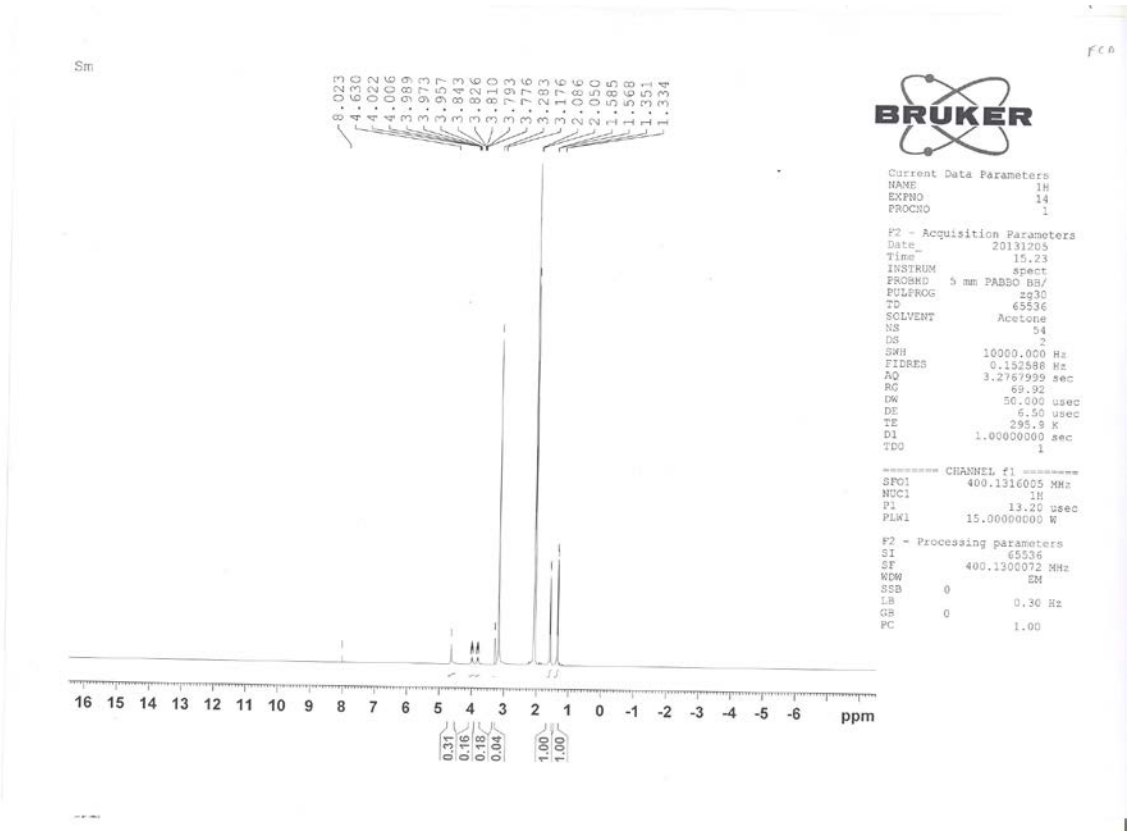
S12 : ^{1}H NMR spectrum of : $(^{i}C_3H_7)_2NCOCH_2OH$



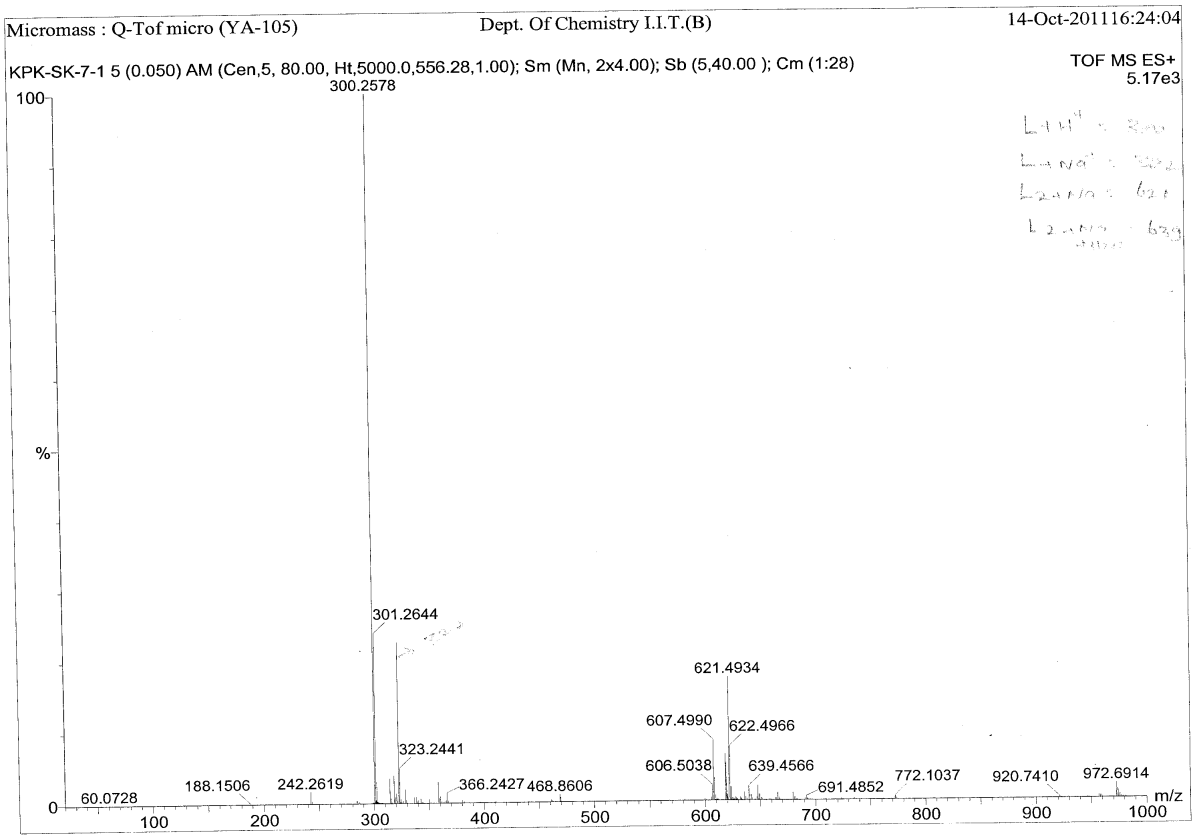
S13 : ^{1}H NMR spectrum of : $La(NO_3)_3$ + $(C_8H_{17})_2NCOCH_2OH$ compound in CD_3OD



S14 : ^{1}H NMR spectrum of : $Eu(NO_3)_3$ + $(C_8H_{17})_2NCOCH_2OH$ compound in CD_3COCD_3



S15 : ^{1}H NMR spectrum of : $Sm(NO_3)_3$ + $(C_8H_{17})_2NCOCH_2OH$ compound in CD_3COCD_3



S8 : ES-MS spectrum of final compound : $(C_8H_{17})_2NCOCH_2OH$ in CH_2Cl_2

The starting chloro compound is un-detectable