

**Highly efficient and chemoselective transfer hydrogenation of nitroarenes
at room temperature over magnetically separable Fe-Ni bimetallic
nanoparticles**

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Total number of pages: 16

Total number of figures: 3 (Figure S1 – S3)

Total number of tables: 1 (Table T1)

Figure S1: TEM image of Fe-Ni NP's.

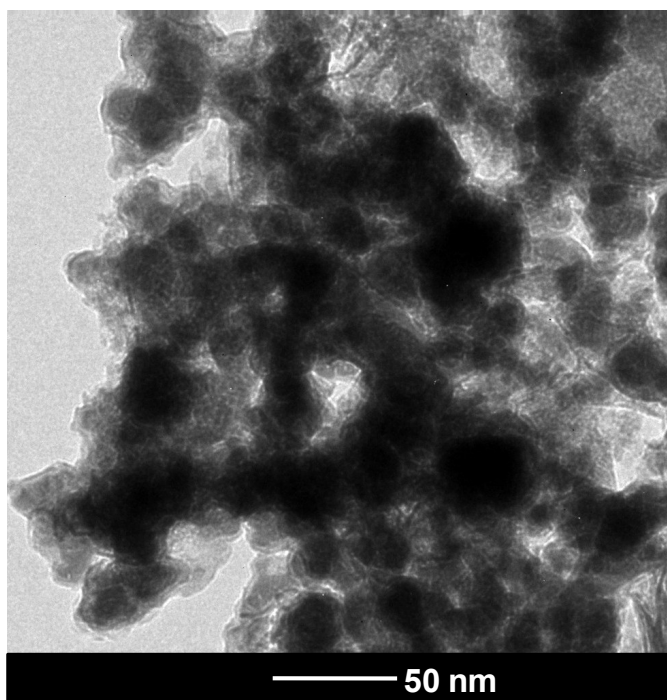


Figure S2: Effect of Fe-Ni NP's loading on reduction of nitrobenzene.

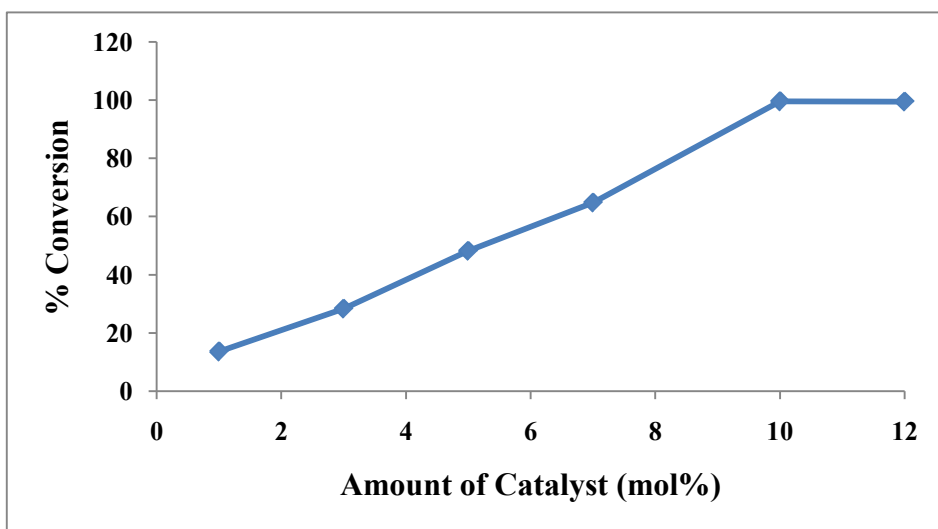
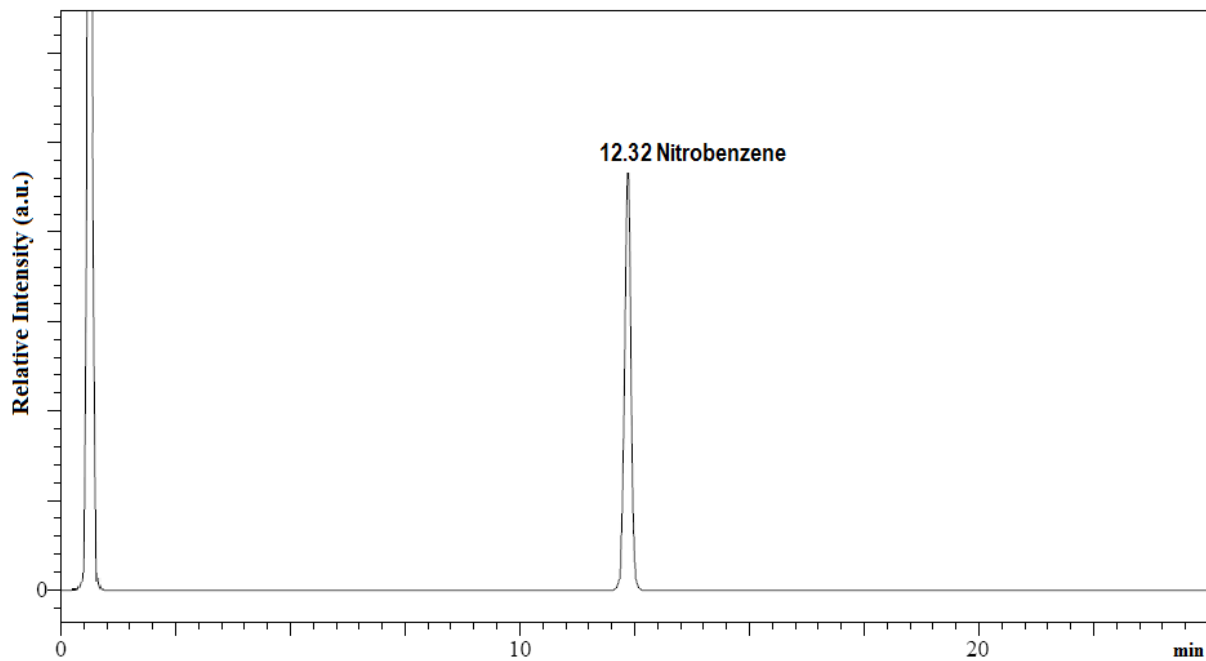
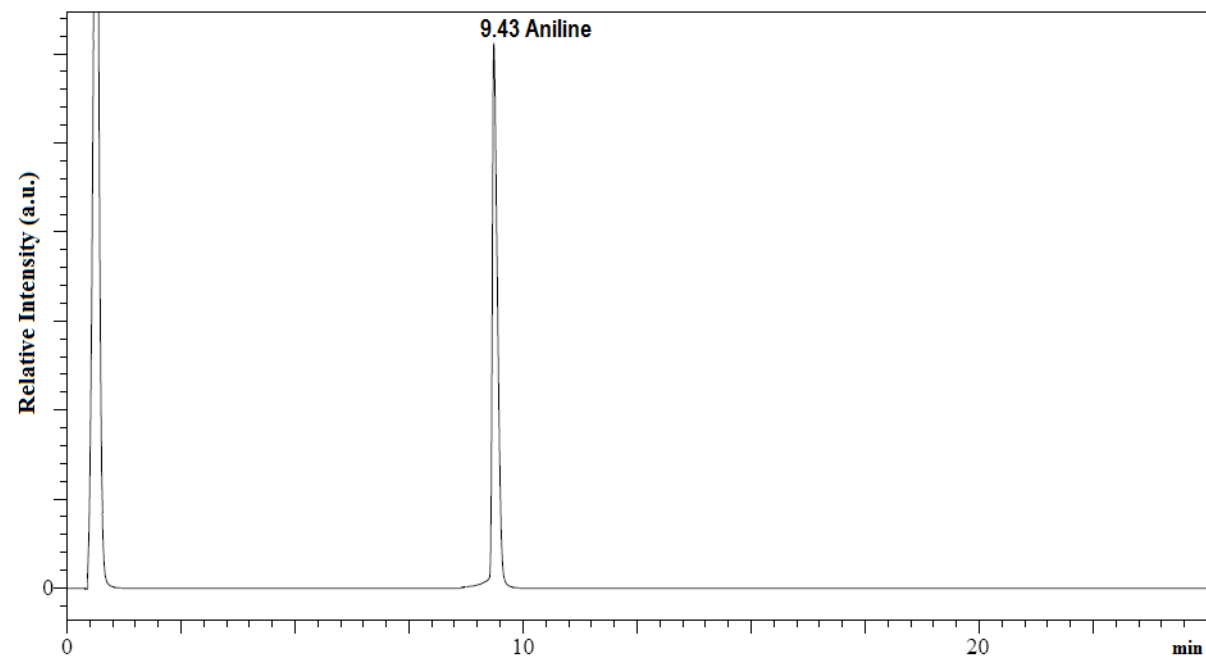


Figure S3: GC-MS of CTH reactions carried out with Fe-Ni NP's with NaBH₄ at ambient conditions.

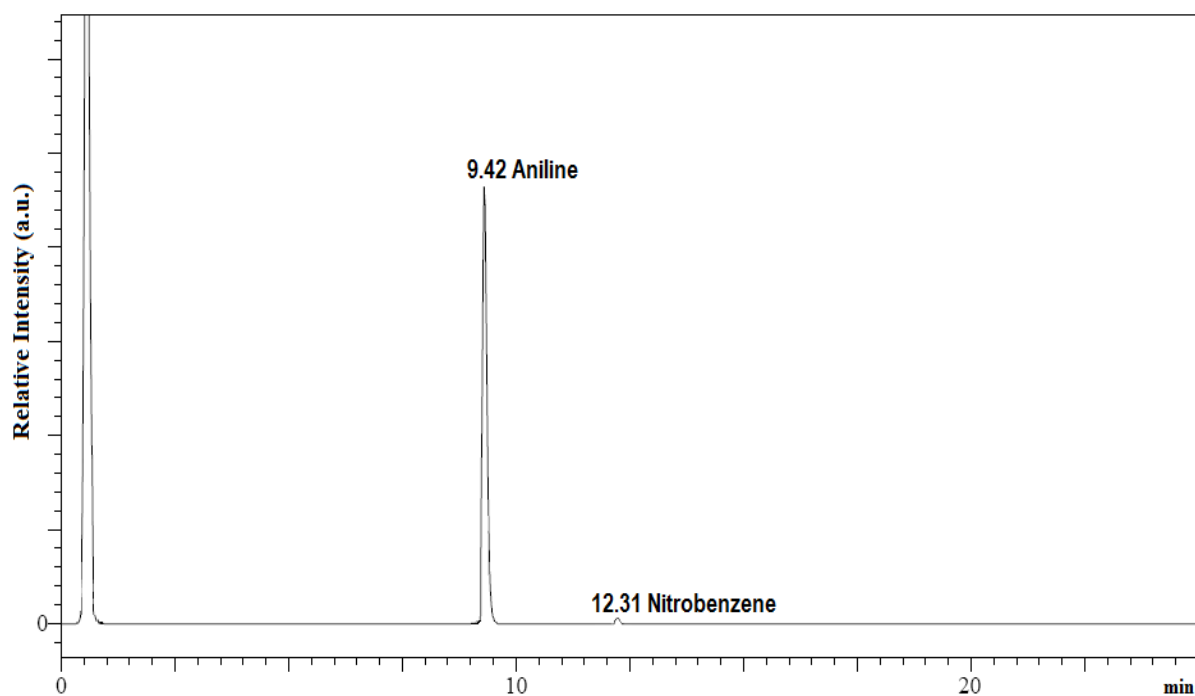
GC of standard nitrobenzene



GC of standard aniline

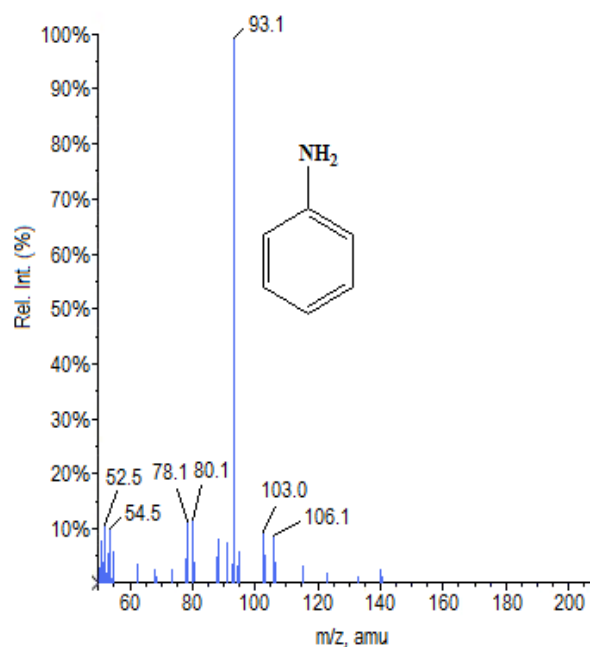


1. Nitrobenzene to aniline (reaction carried out in methanol)

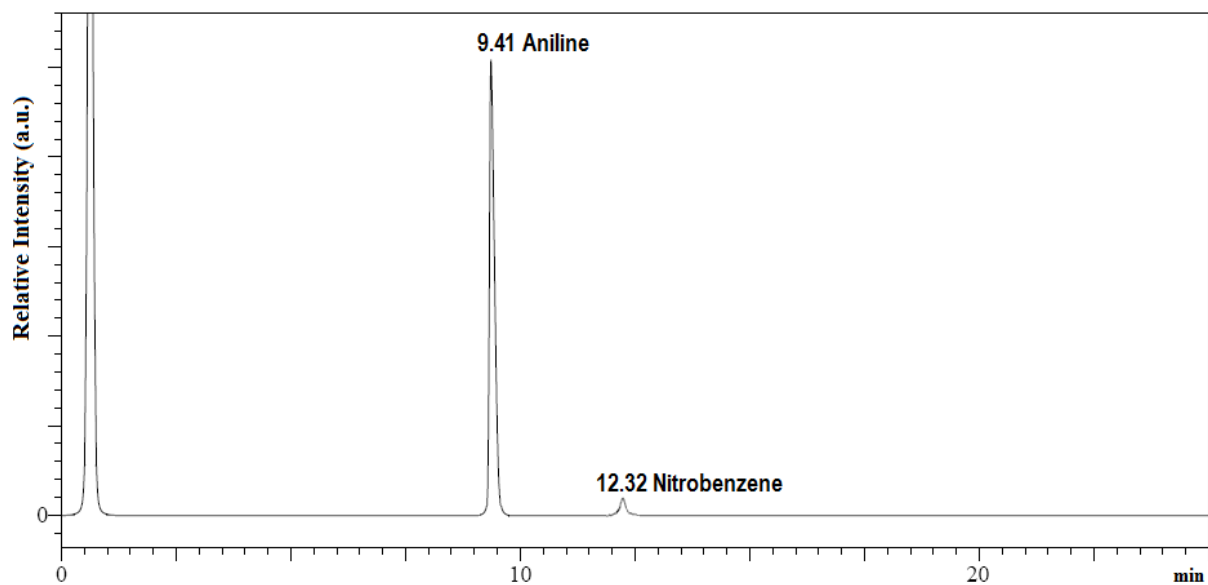


Peak Table – Channel 1

Peak#	Ret. Time	Name	Area	Area%
1	9.42	Aniline	36080262	99.52
2	12.31	Nitrobenzene	174020	0.48
Total				100.00

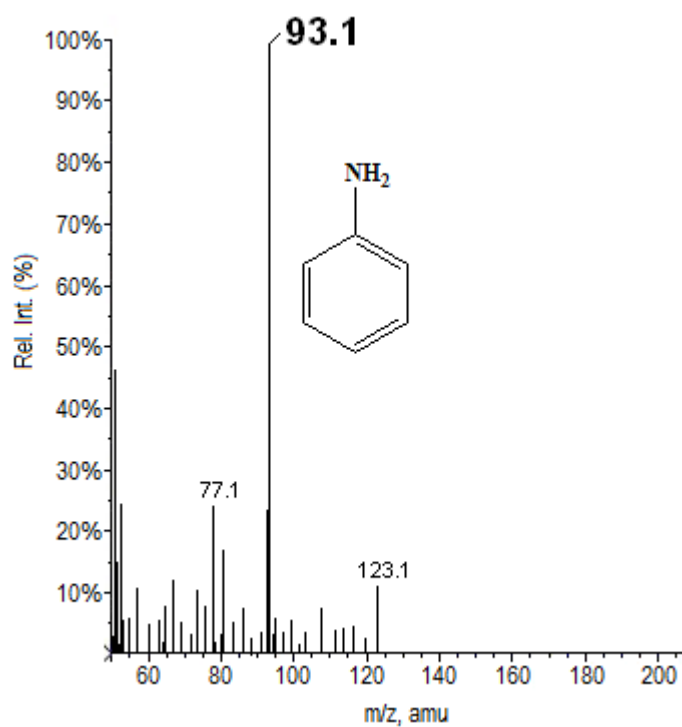


Nitrobenzene to aniline (reaction carried out in water)

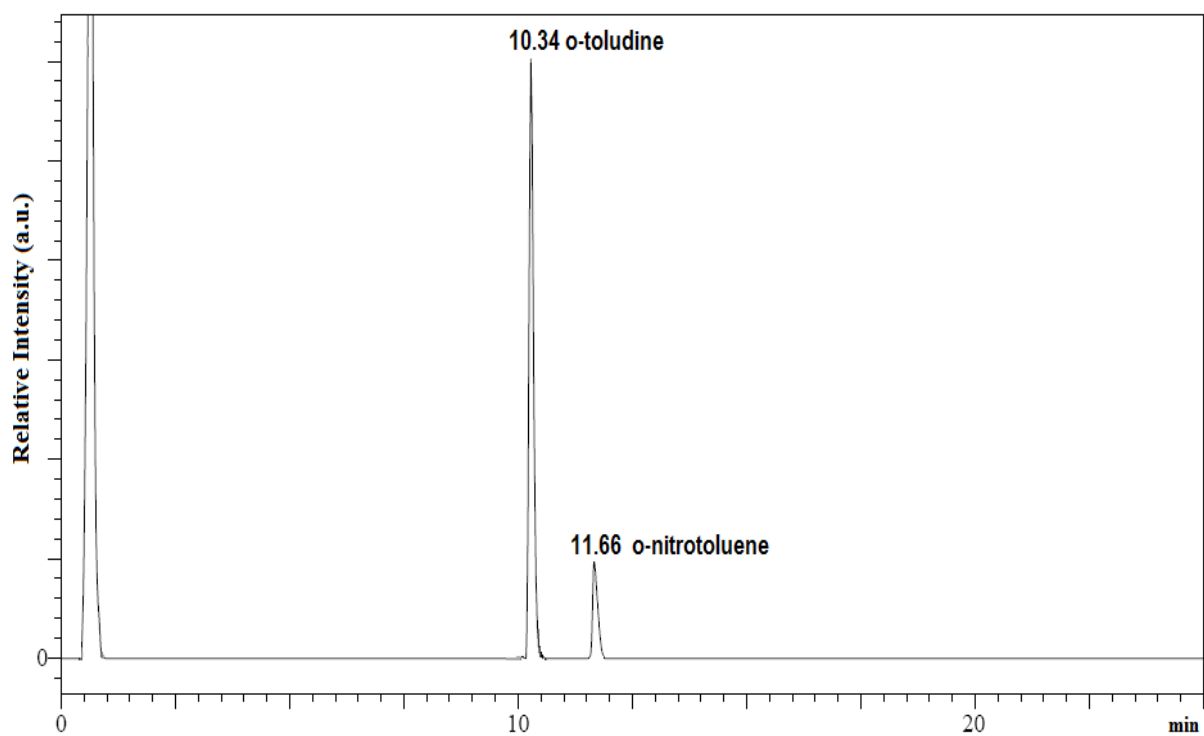


Peak Table – Channel 1

Peak#	Ret. Time	Name	Area	Area%
1	9.41	Aniline	33845586	98.71
2	12.32	Nitrobenzene	442314	1.29
Total				100.00

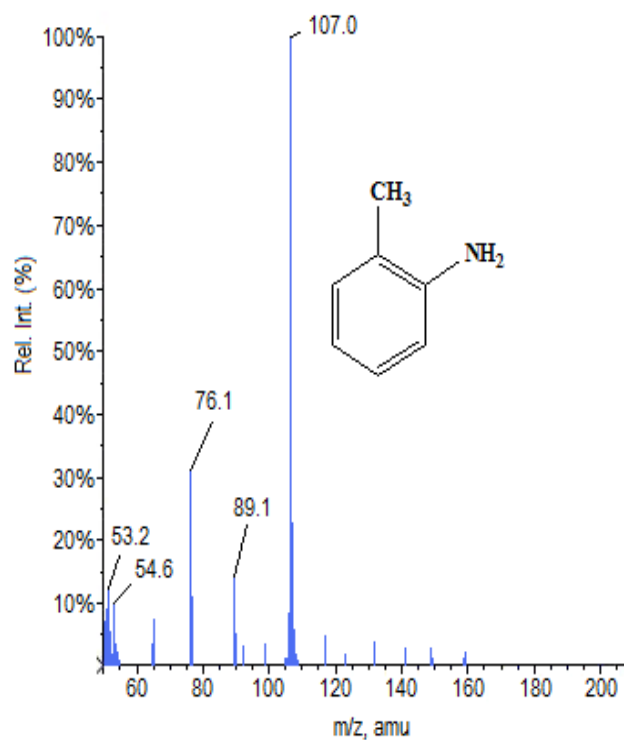


2. o-nitrotoluene to o-toluidine

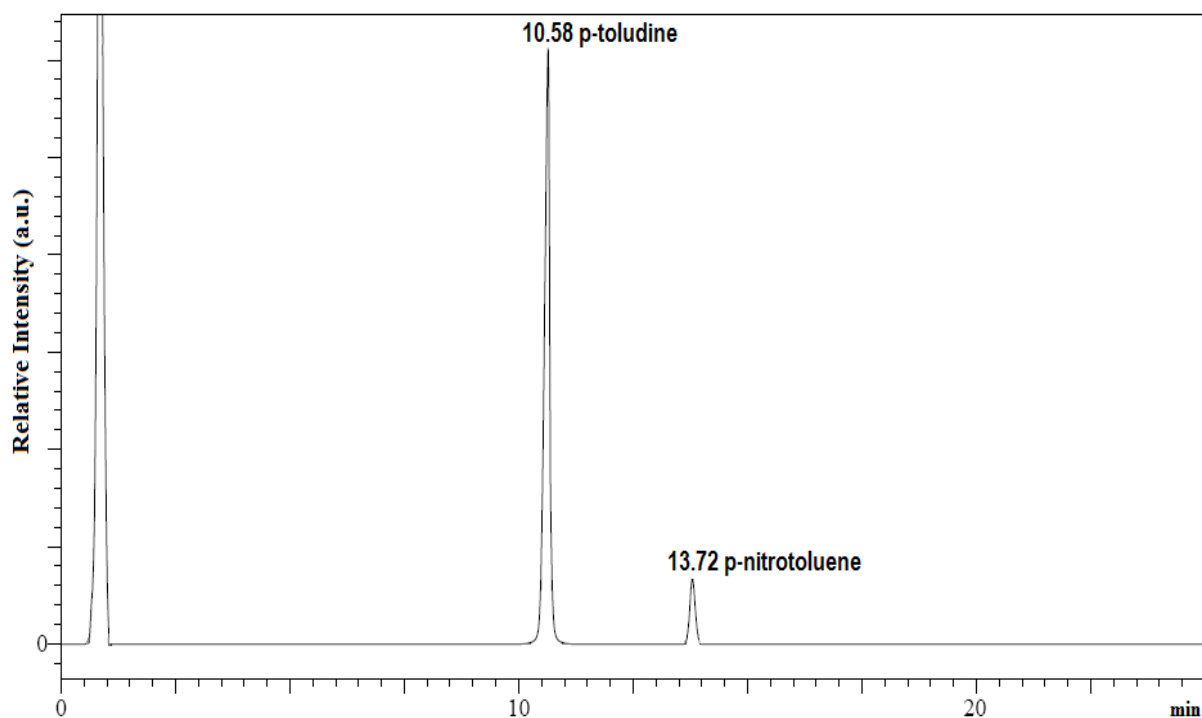


Peak Table – Channel 1

Peak#	Ret. Time	Name	Area	Area%
1	10.34	o-toluidine	5844624	88.02
2	11.66	o-nitrotoluene	795485	11.98
Total				100.00

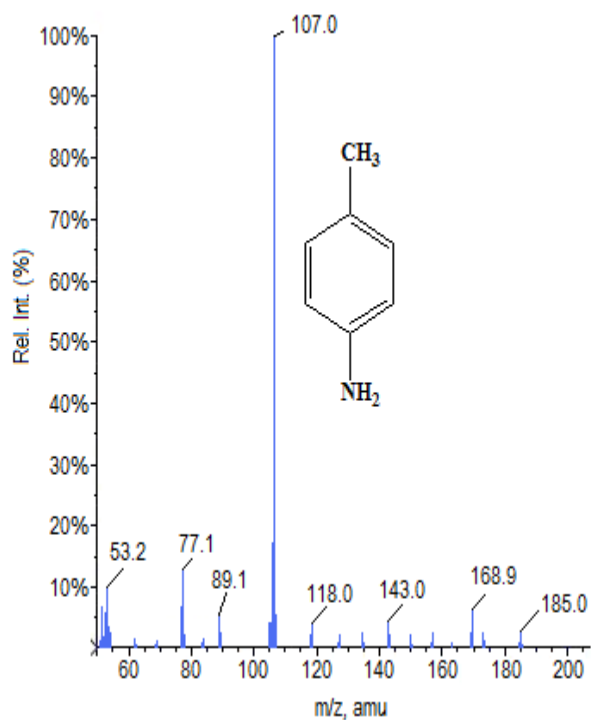


3. p-nitrotoluene to p-toluidine

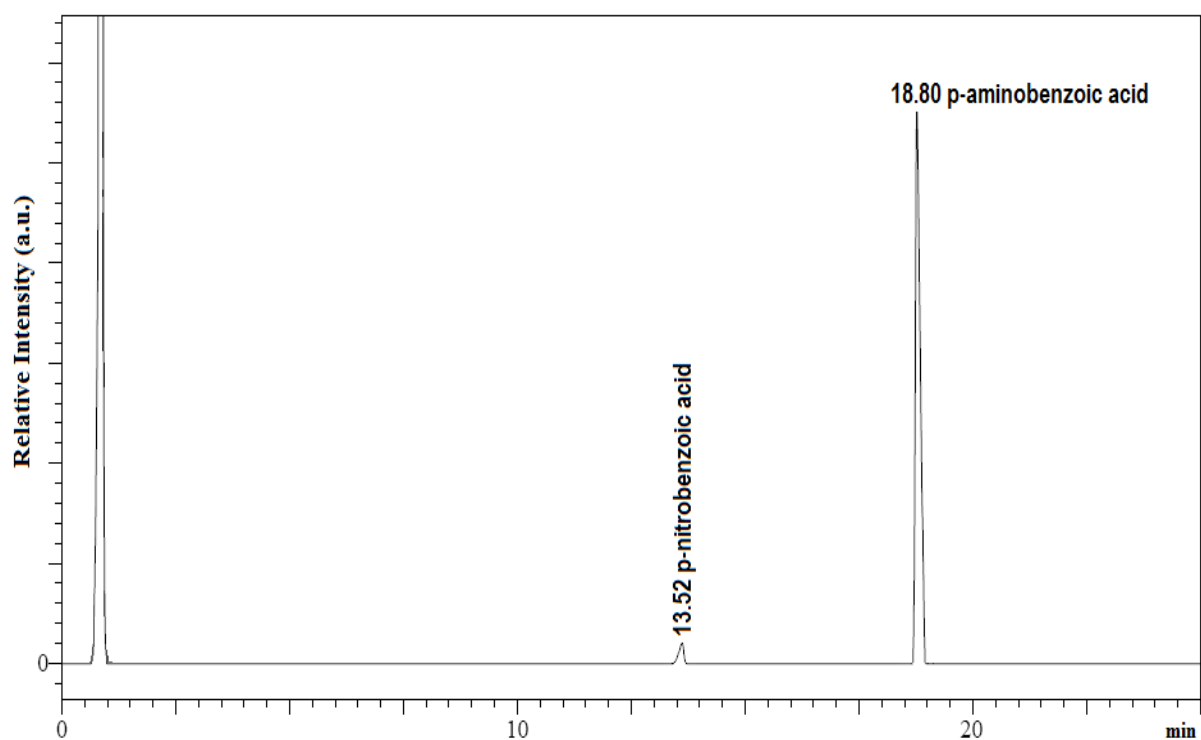


Peak Table – Channel 1

Peak#	Ret. Time	Name	Area	Area%
1	10.58	p-toluidine	29170212	90.17
2	13.72	p-nitrotoluene	3180029	9.83
Total				100.00

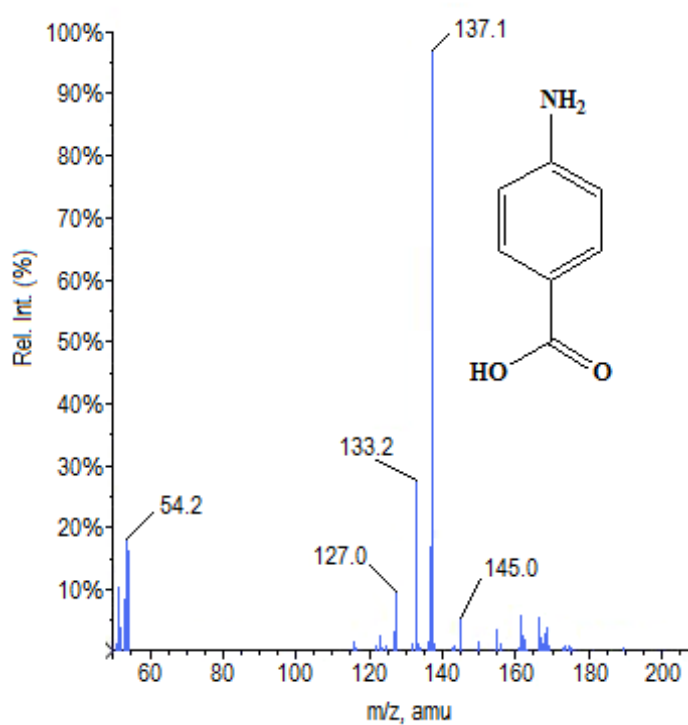


4. p-nitrobenzoic acid to p-aminobenzoic acid

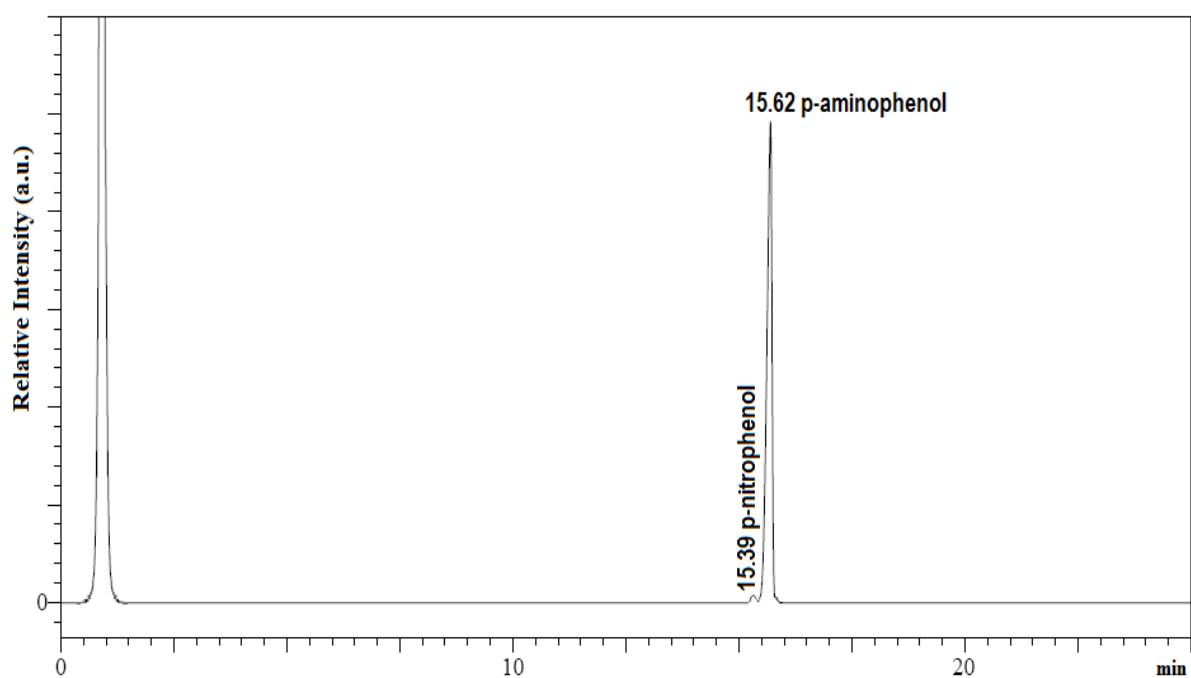


Peak Table – Channel 1

Peak#	Ret. Time	Name	Area	Area%
1	13.52	p-nitrobenzoic acid	1290459	4.43
2	18.80	p-aminobenzoic acid	27839547	95.57
Total				100.00

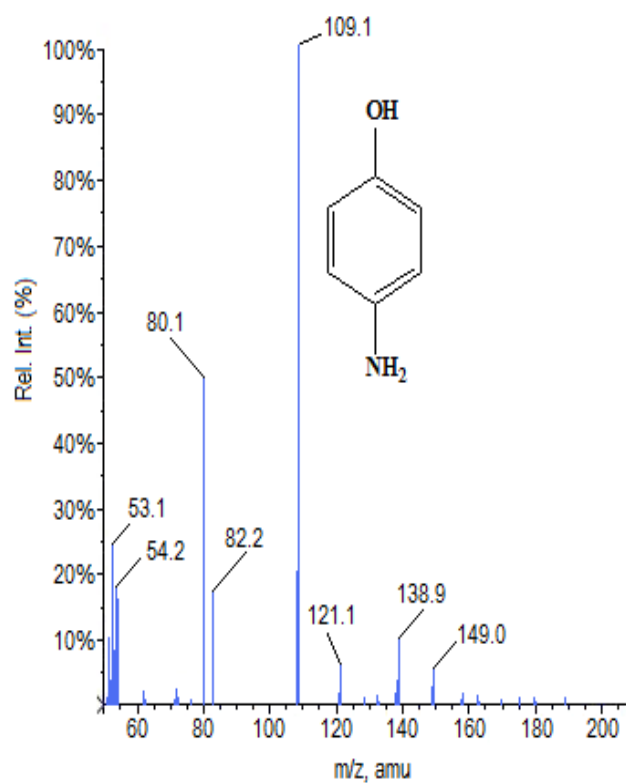


5. p-nitrophenol to p-aminophenol

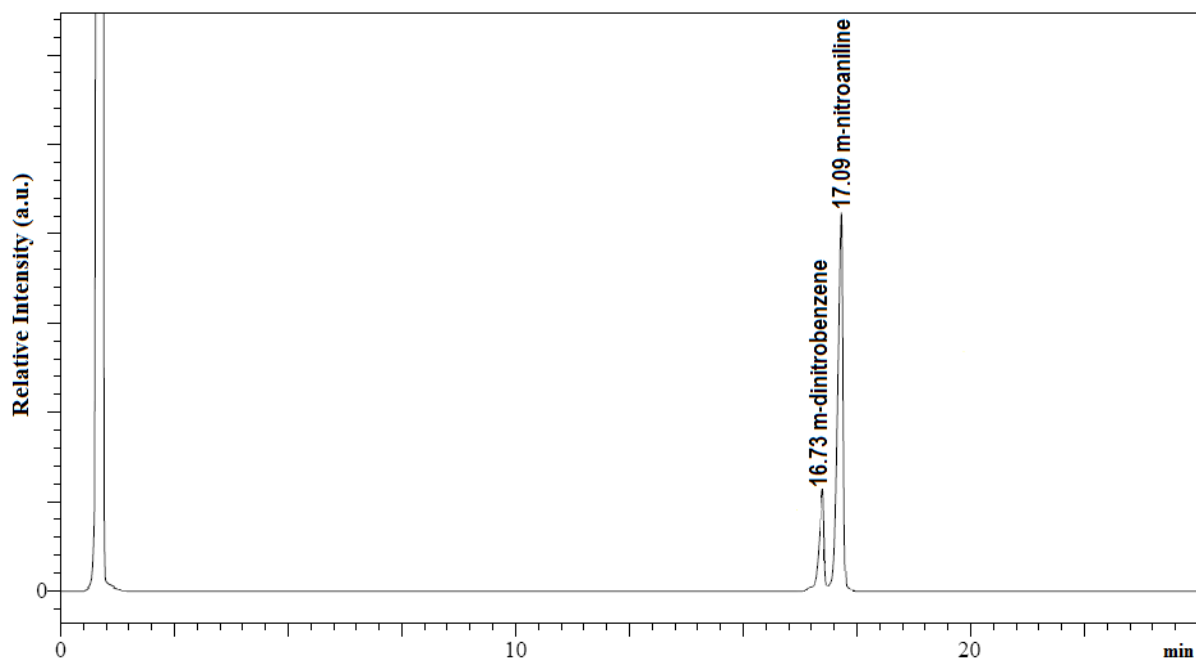


Peak Table – Channel 1

Peak#	Ret. Time	Name	Area	Area%
1	15.39	p-nitrophenol	42100	0.63
2	15.62	p-aminophenol	6640427	99.37
Total				100.00

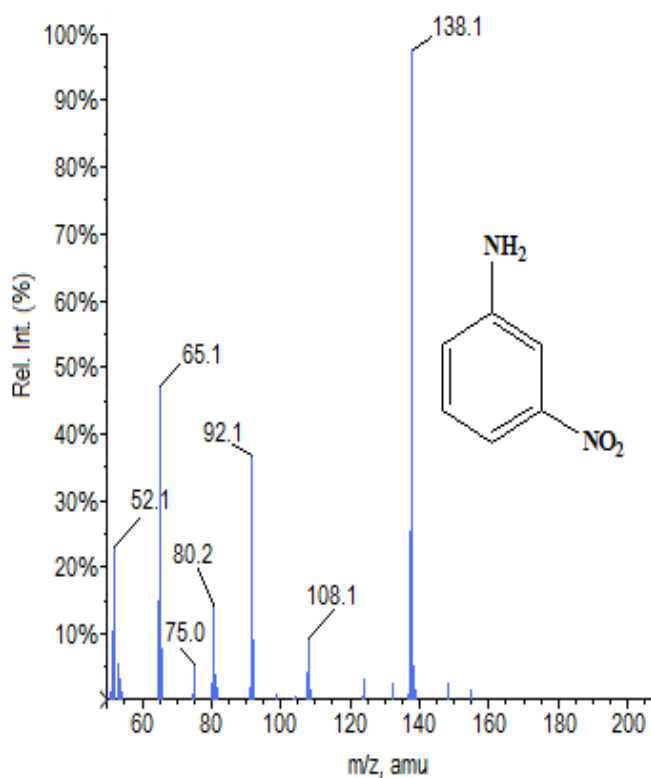


6. m-dinitrobenzene to m-nitroaniline

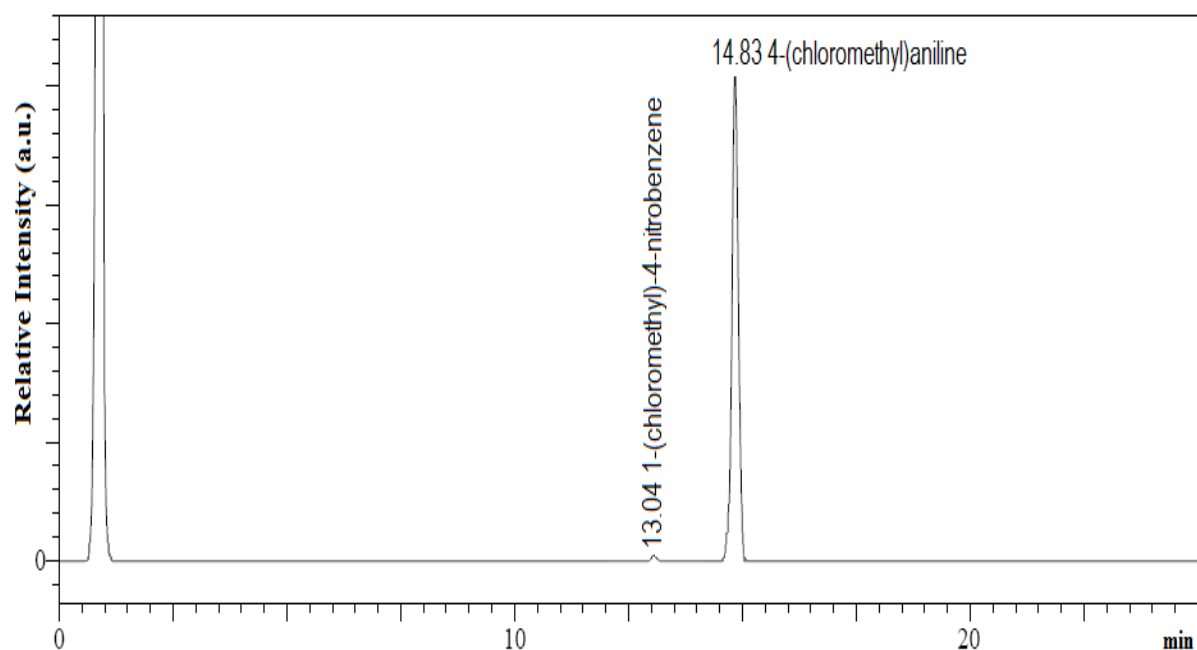


Peak Table – Channel 1

Peak#	Ret. Time	Name	Area	Area%
1	16.73	m-dinitrobenzene	896699	19.74
2	17.09	m-nitroaniline	3645850	80.26
Total				100.00

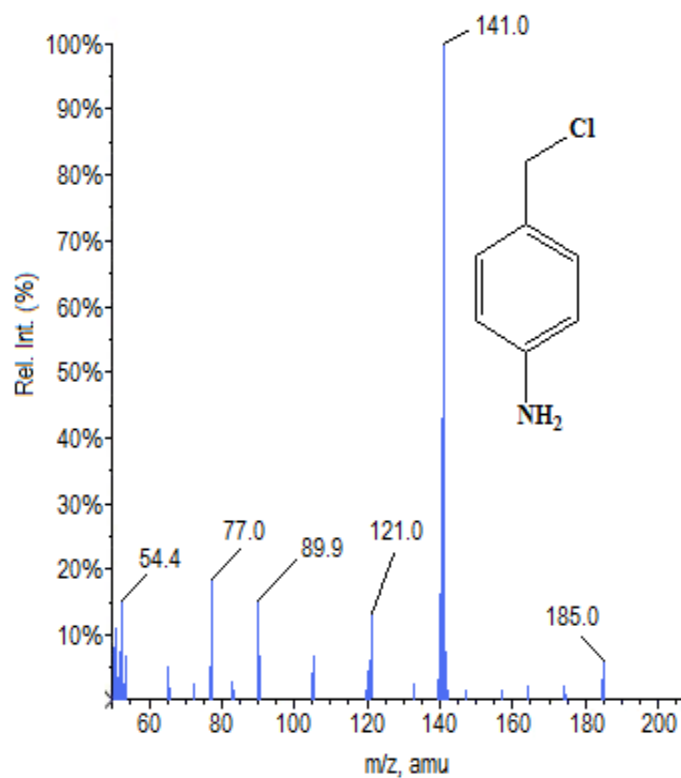


7. 1-(chloromethyl)-4-nitrobenzene to 4-(chloromethyl) aniline

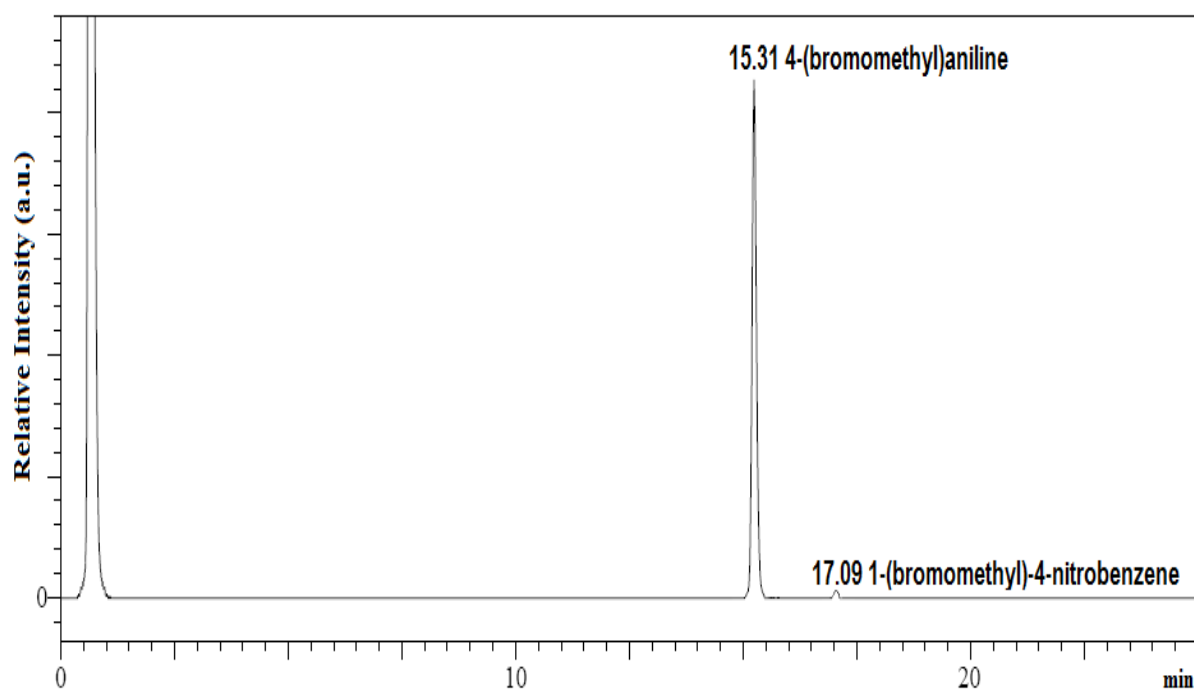


Peak Table – Channel 1

Peak#	Ret. Time	Name	Area	Area%
1	13.04	1-(chloromethyl)-4-nitrobenzene	11198	0.21
2	14.83	4-(chloromethyl)aniline	5321130	99.79
Total				100.00

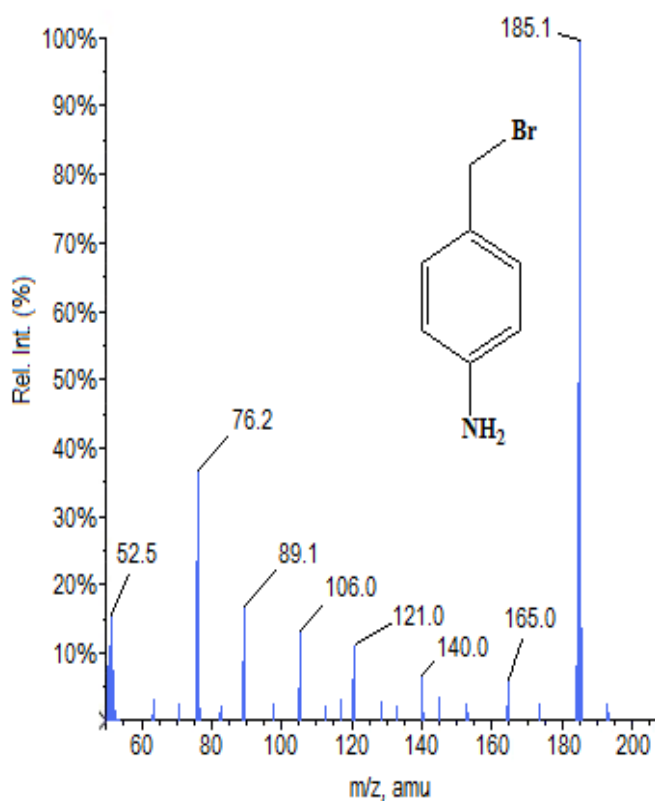


8. 1-(bromomethyl)-4-nitrobenzene to 4-(bromomethyl)aniline

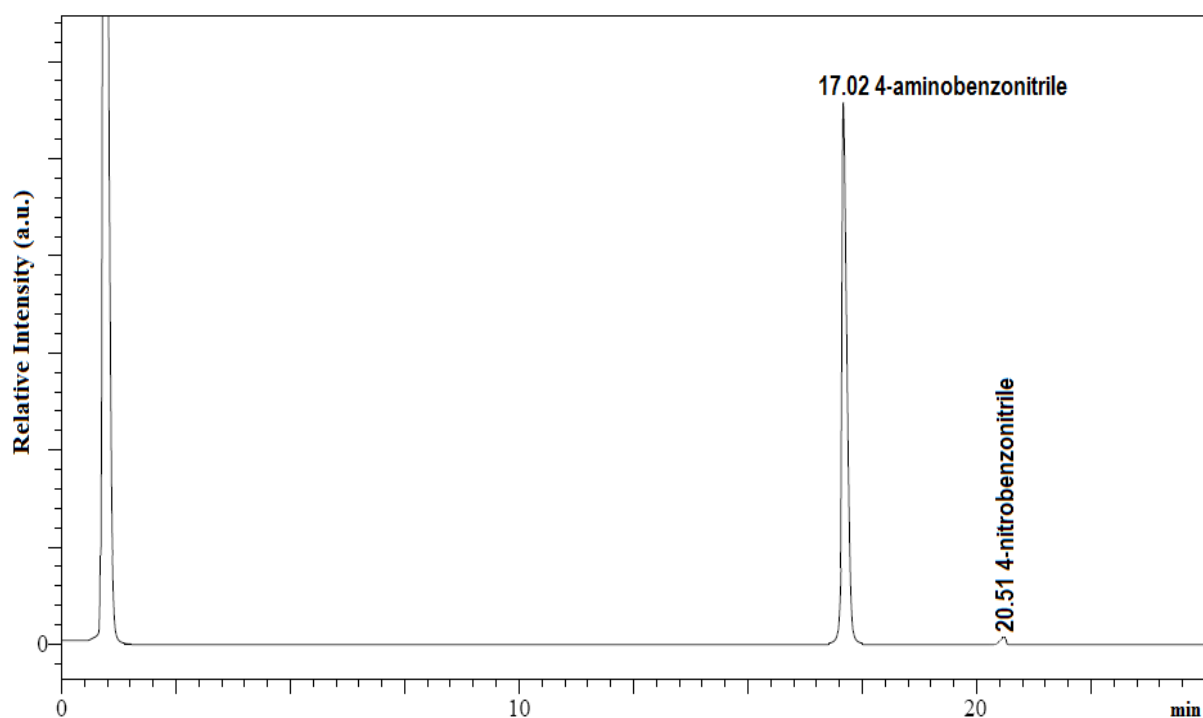


Peak Table – Channel 1

Peak#	Ret. Time	Name	Area	Area%
1	15.31	4-(bromomethyl)aniline	3455208	98.85
2	17.09	1-(bromomethyl)-4-nitrobenzene	40197	1.15
Total				100.00

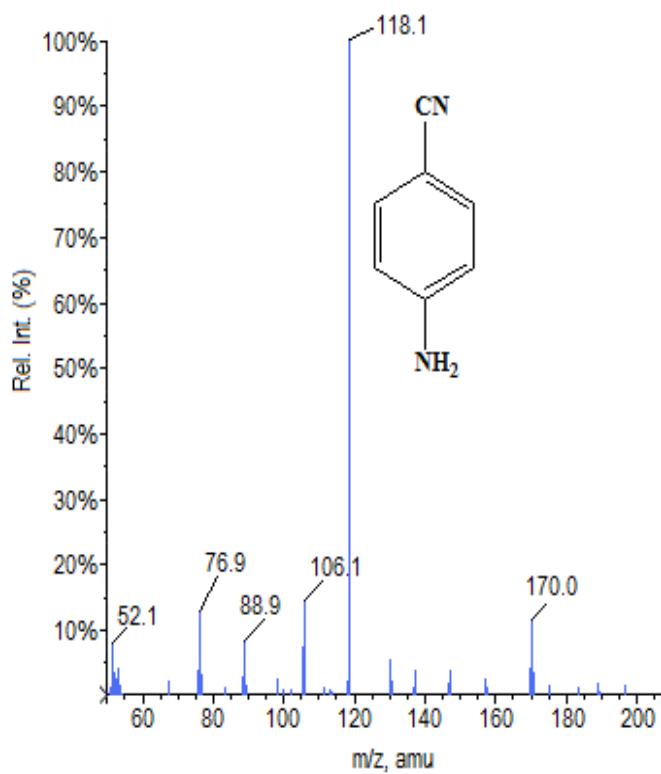


9. 4-nitrobenzonitrile to 4-aminobenzonitrile

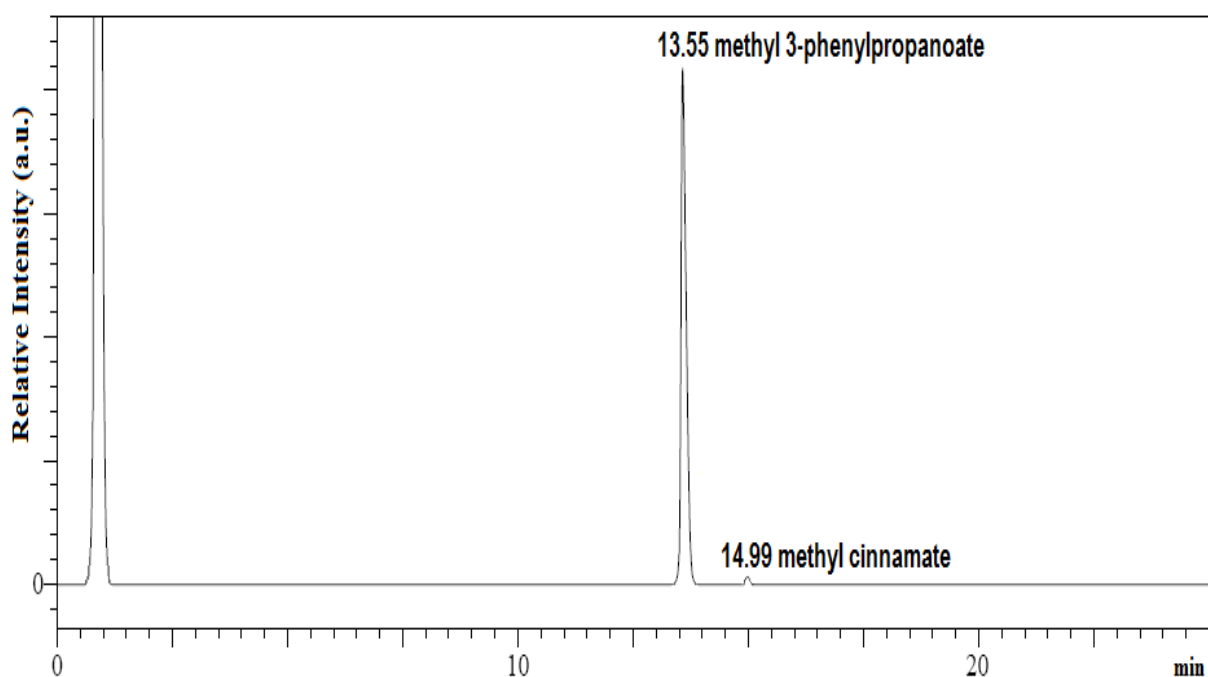


Peak Table – Channel 1

Peak#	Ret. Time	Name	Area	Area%
1	17.02	4-aminobenzonitrile	3389479	99.57
2	20.51	4-nitrobenzonitrile	14638	0.43
Total				100.00



10. methyl cinnamate to methyl 3-phenylpropanoate



Peak Table – Channel 1

Peak#	Ret. Time	Name	Area	Area%
1	13.55	methyl 3-phenylpropanoate	5383647	99.27
2	14.99	methyl cinnamate	39590	0.73
Total				100.00

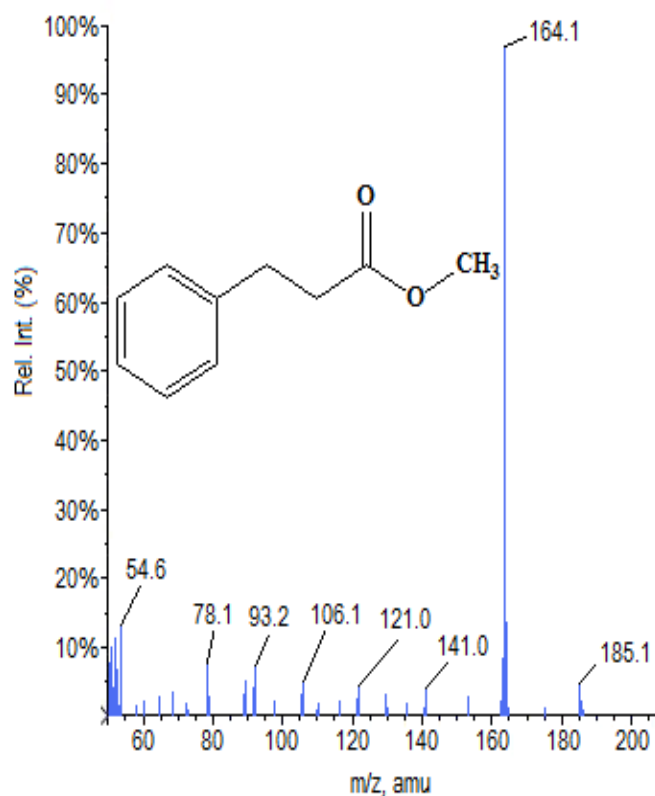
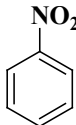
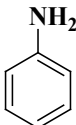
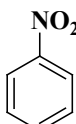
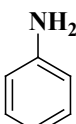


Table T1: Hydrogenation of nitrobenzene using nickel nanoparticles and nZVI with NaBH₄ at ambient conditions.

Catalyst	Substrate	Product	Time	Yield (%)
Ni NP's			1 h	NR
Fe NP's			4 h	49.86

*NR – no reaction