Electronic Supplementary Material (ESI) for RSC Advances

Supplementary Information

Synergistic action of flavin containing NADH dependant azoreductase and cytochrome P450 monooxygenase in azoaromatics mineralization

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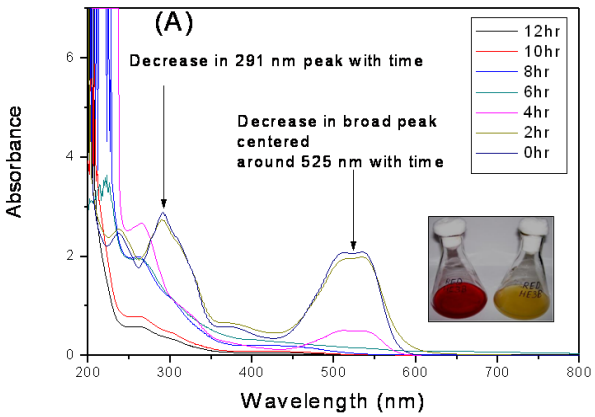
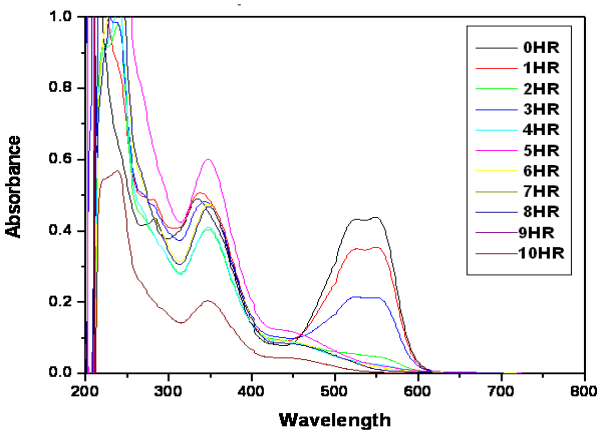
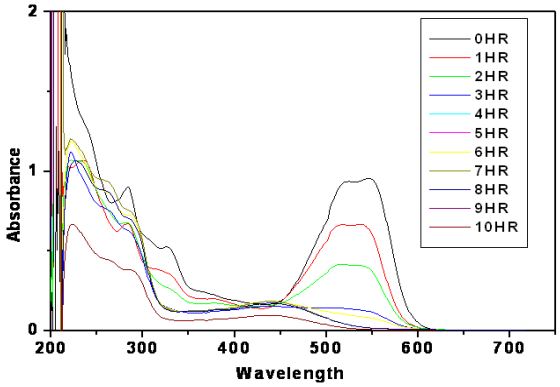


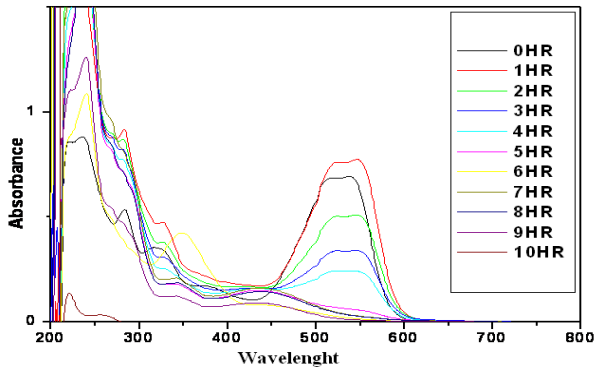
A) RR120 (Oturkar *et al* 2011)



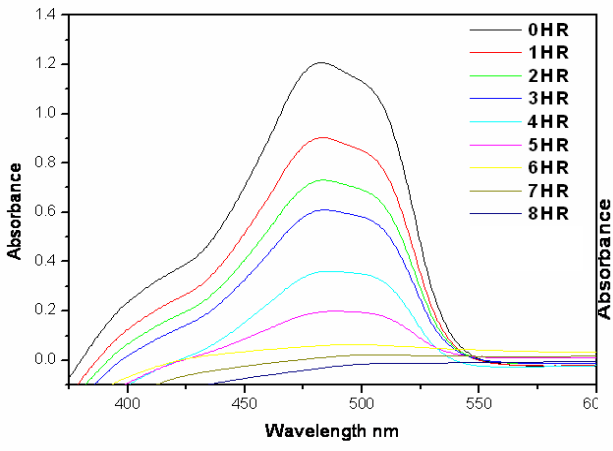
B) RR141



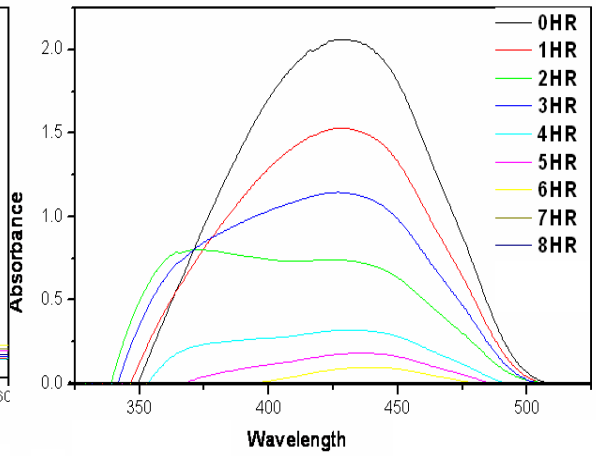
C) RR 11



D) RR 2



E) Sunset Yellow



F) Tartrazine

Fig.S1 UV-Visible spectra during the decolorization azoic dyes

Table S1 Substrate specificities study of purified azoreductase

Substrates	Azoreductase Activity (U/mg)	K_m (μM)	V_{max} (mmol.min^{-1}mg^{-1})	kcat (S^{-1})
RR120	0.111 ± 0.005	0.25 ± 0.03	10.2 ± 1.5	3.2 ± 0.08
RR11	0.079 ± 0.004	0.41 ± 0.04	8.7 ± 1.4	2.6 ± 0.03
RR5	0.089 ± 0.003	0.45 ± 0.02	8.9 ± 1.4	3.4 ± 0.03
RR141	0.115 ± 0.005	0.37 ± 0.03	11.2 ± 1.3	3.2 ± 0.04
SY	0.105 ± 0.004	0.38 ± 0.02	9.3 ± 1.7	4.1 ± 0.02

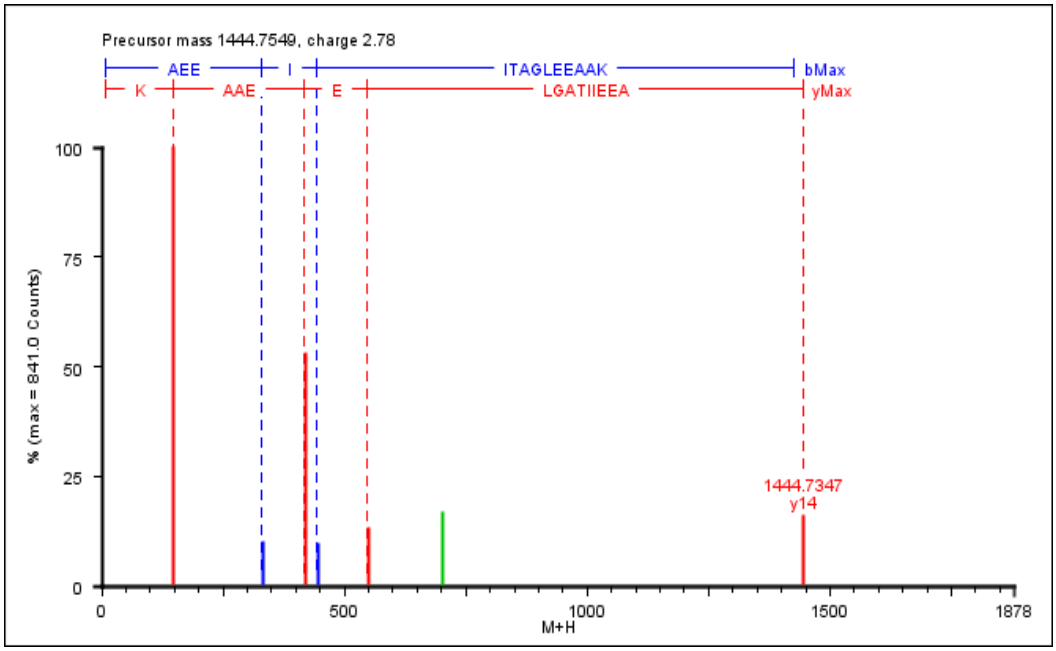
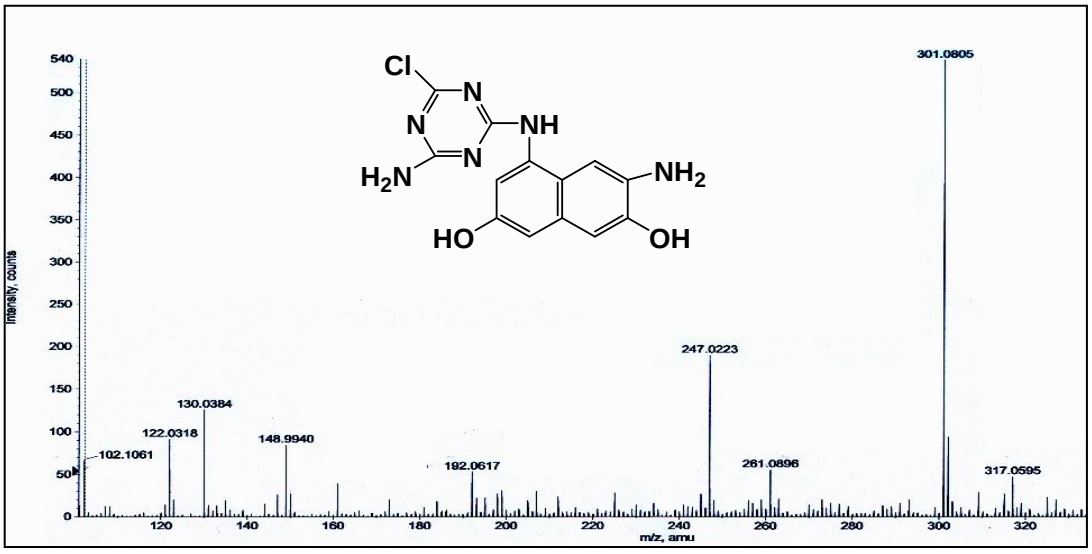


Fig. S2 The fragmentation pattern of precursor MH^+ (1444.753 Da) for peptide (K)AEEIITAGLEEAAK(V)

Fig.S3 Possible major intermediates metabolites by GC-MS fragmentation spectra

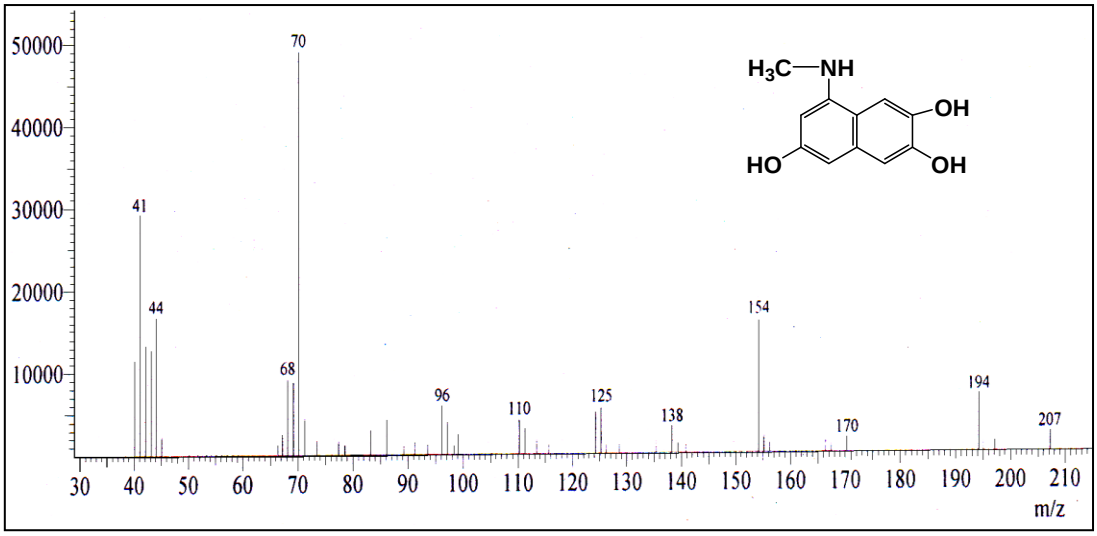
1) 5-(4-amino-6-chloro-1,3,5-triazin ylamino) 3-aminonaphthalene-2,7diol

GC-MS *m/z*: 317.05 [M+], 301 [base peak]

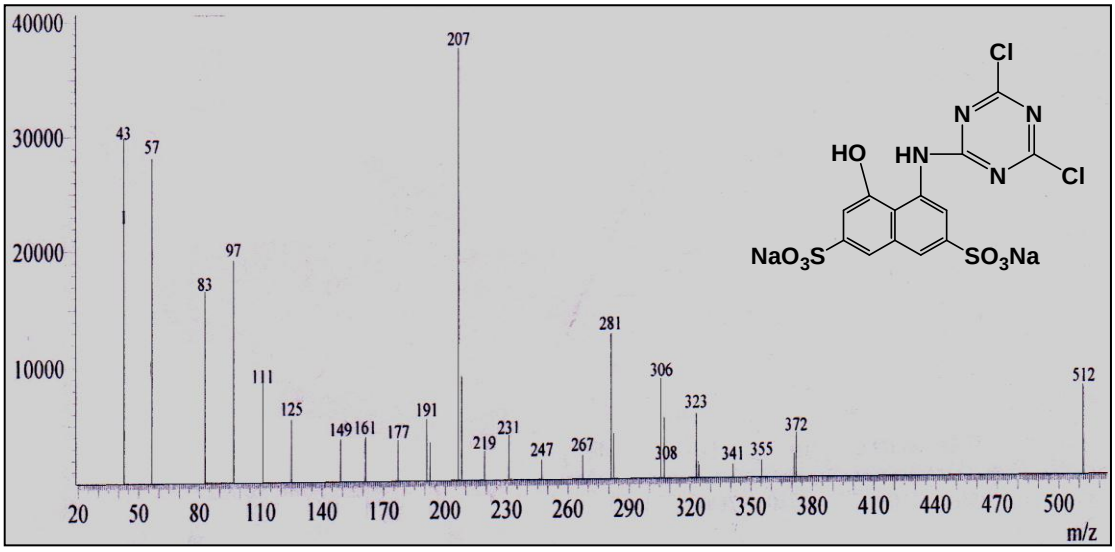


2) 8-(methylamino) naphthalene-2, 3, 6-triol

GC-MS *m/z*: 207.05 [M^+], 70 [base peak]

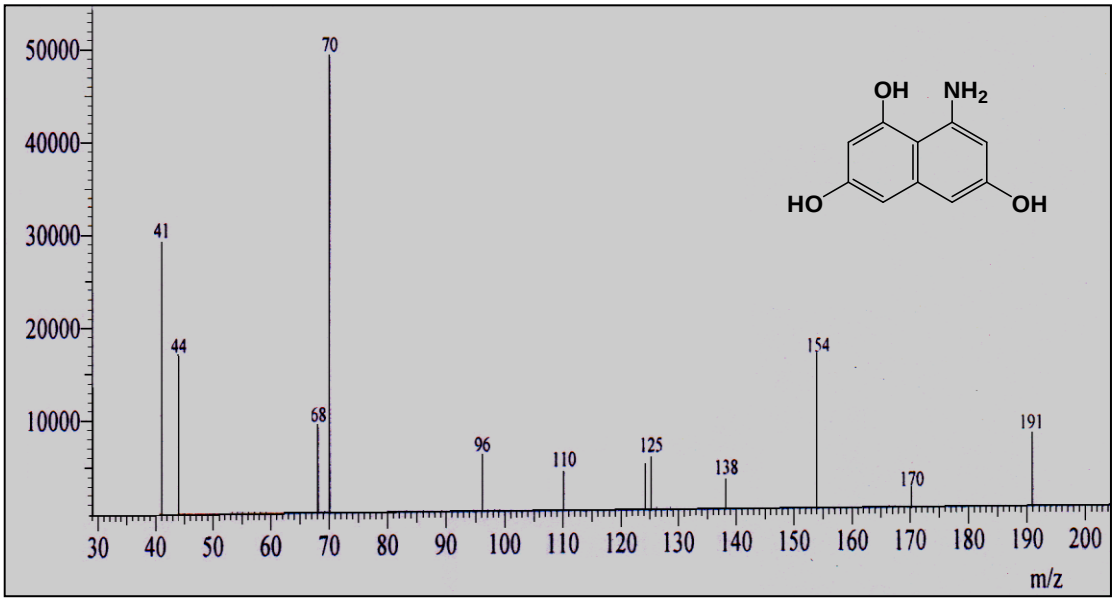


3)Sodium 4-(4,6-dichloro-1,3,5-triazin-2-ylamino)-5-hydroxynaphthalene-2,7-disulfonate
GC-MS *m/z*: 512 [M^+], 207 [base peak]}



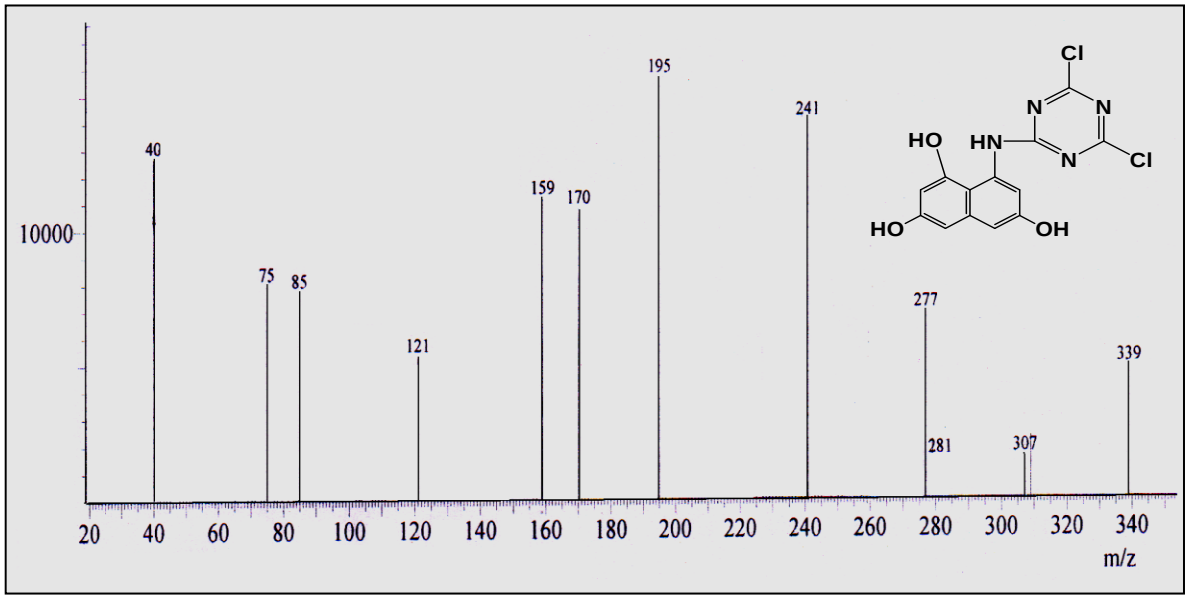
4) 8-aminonaphthalene-1, 3, 6-triol

GC-MS *m/z*: 191 [M^+], 70 [base peak]



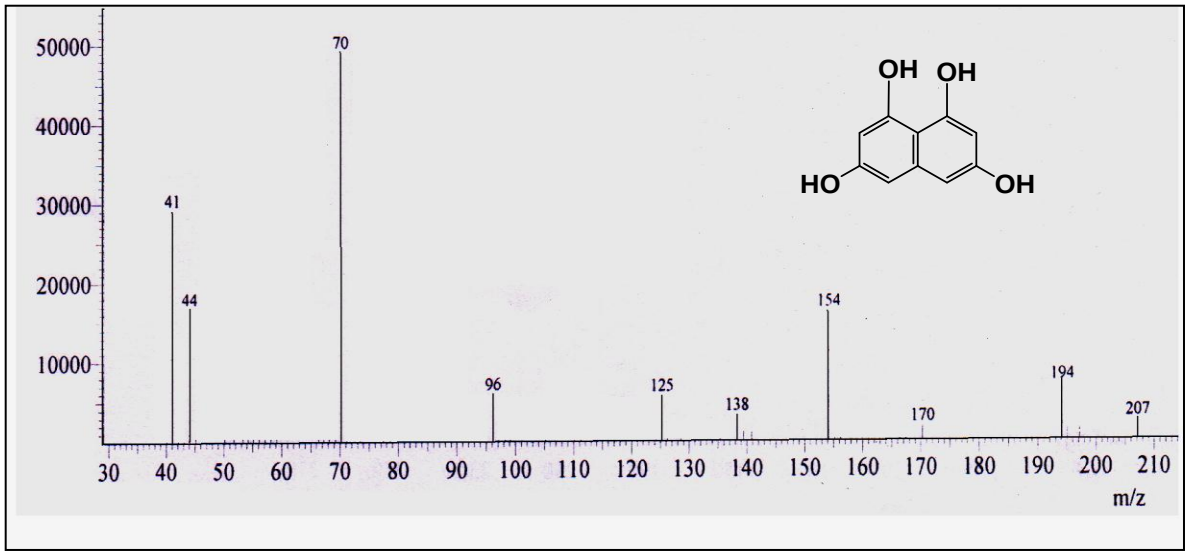
5) 8-(4,6-dichloro-1,3,5-triazin-2-ylamino) naphthalene-1,3,6-triol

GC-MS *m/z*: 339 [M^+], 195 [base peak]



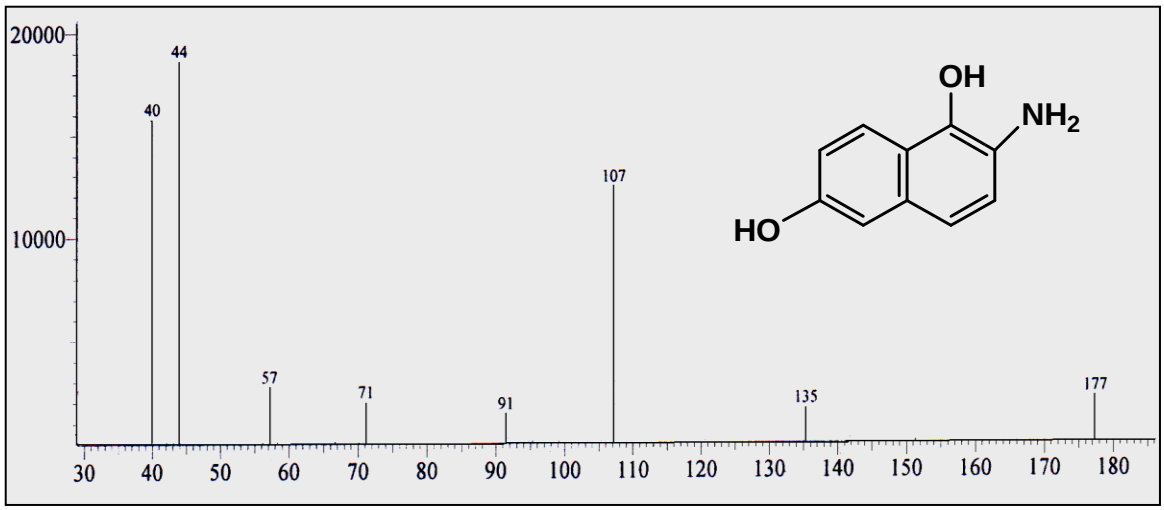
6) Naphthalene-1,3,6,8-tetraol

GC-MS *m/z*: 207 [M^+], 70 [base peak]



7) 2-aminonaphthalene-1,6diol

GC-MS *m/z*: 177 [M^+], 44 [base peak]



8) 1,4-diaminobenzene

GC-MS *m/z*: 107 [M^+], 57 [base peak]

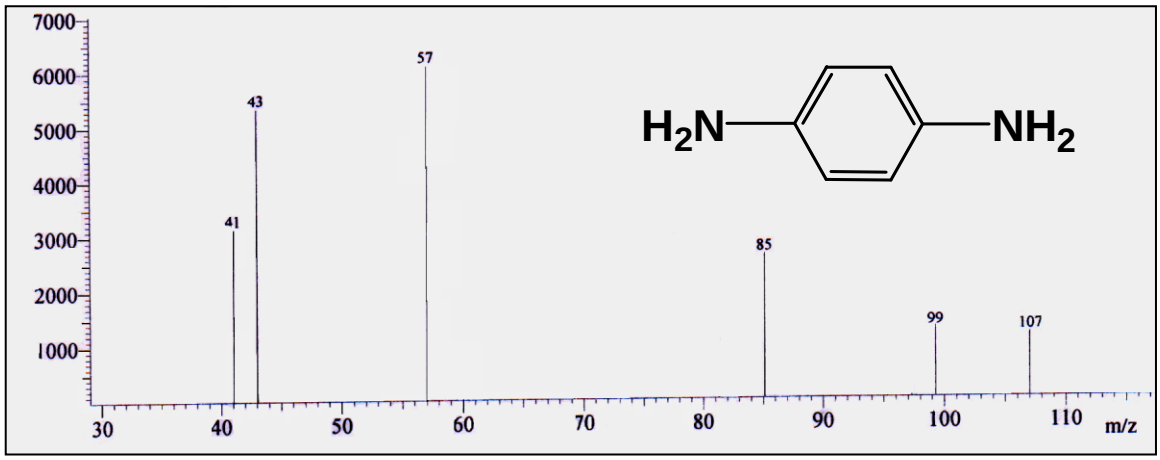
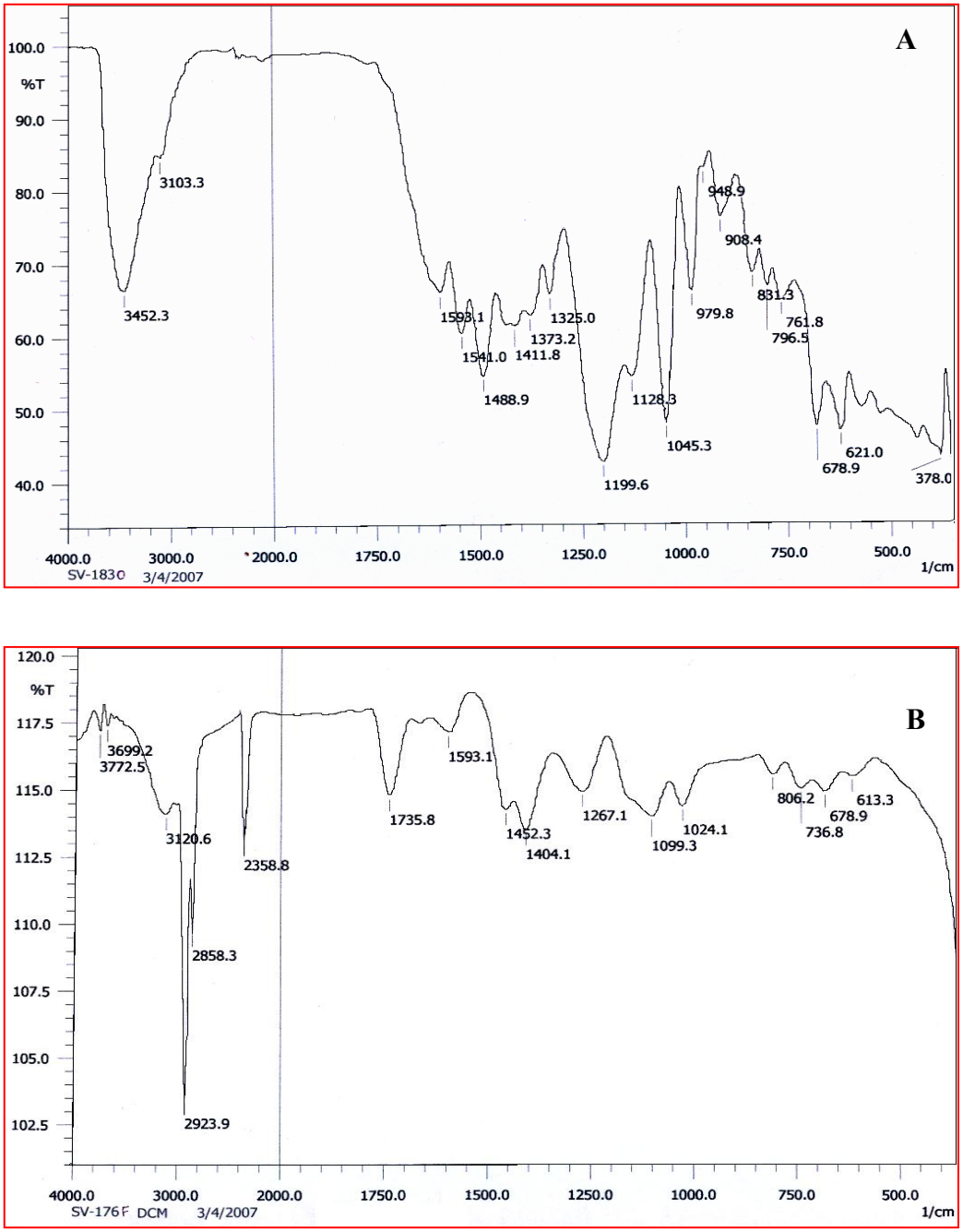
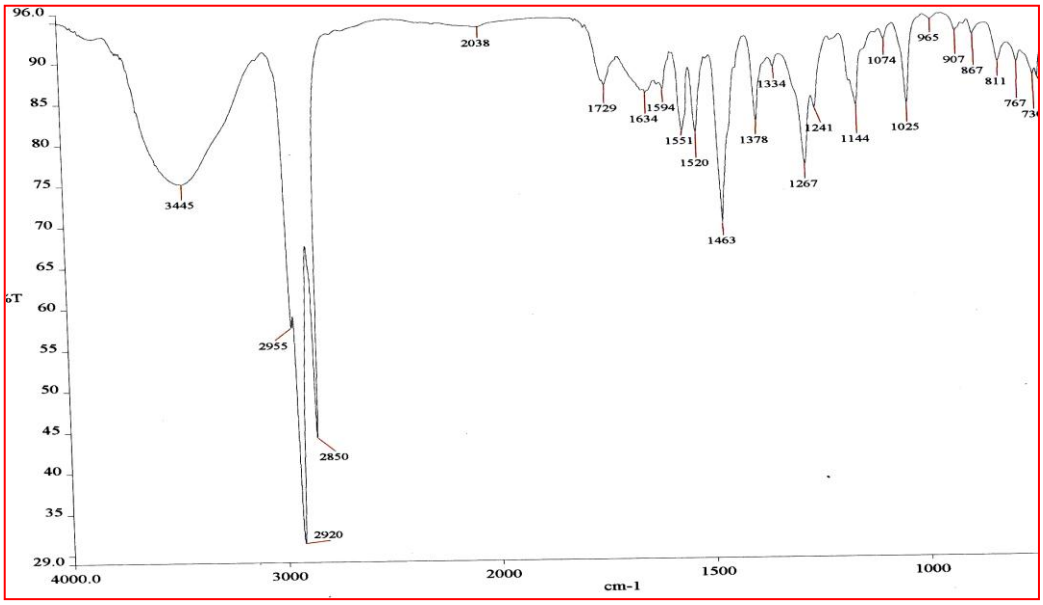


Fig. S4 FTIR frequencies at A) 4 & B) 6 h of decolorisation/degradation

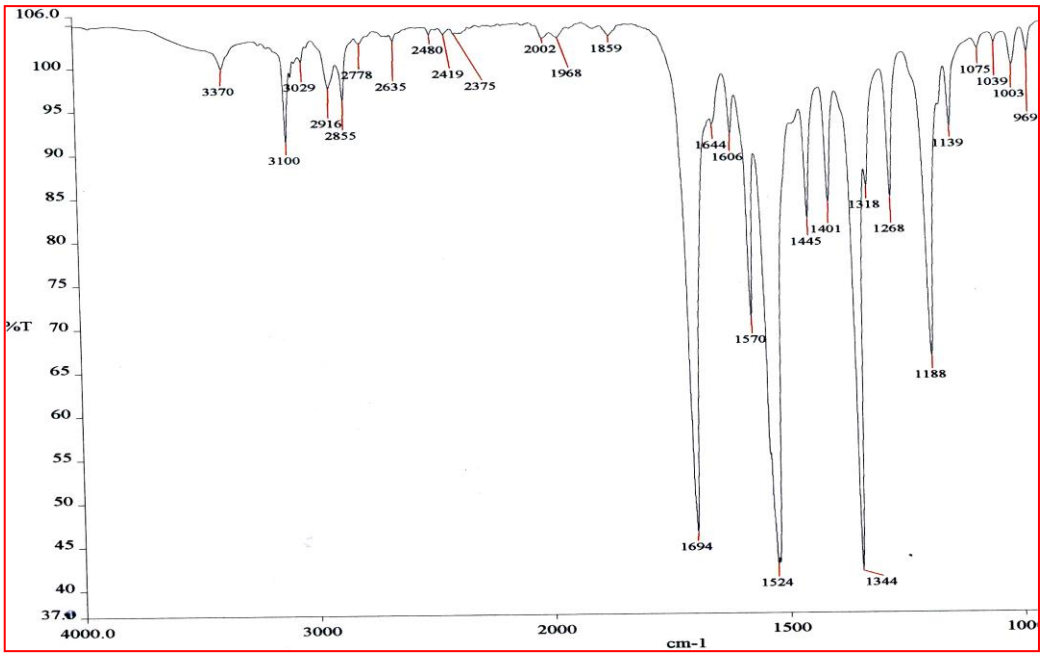


1) FTIR frequencies of RR141 A) 4 & B) 6 h of decolorisation/degradation

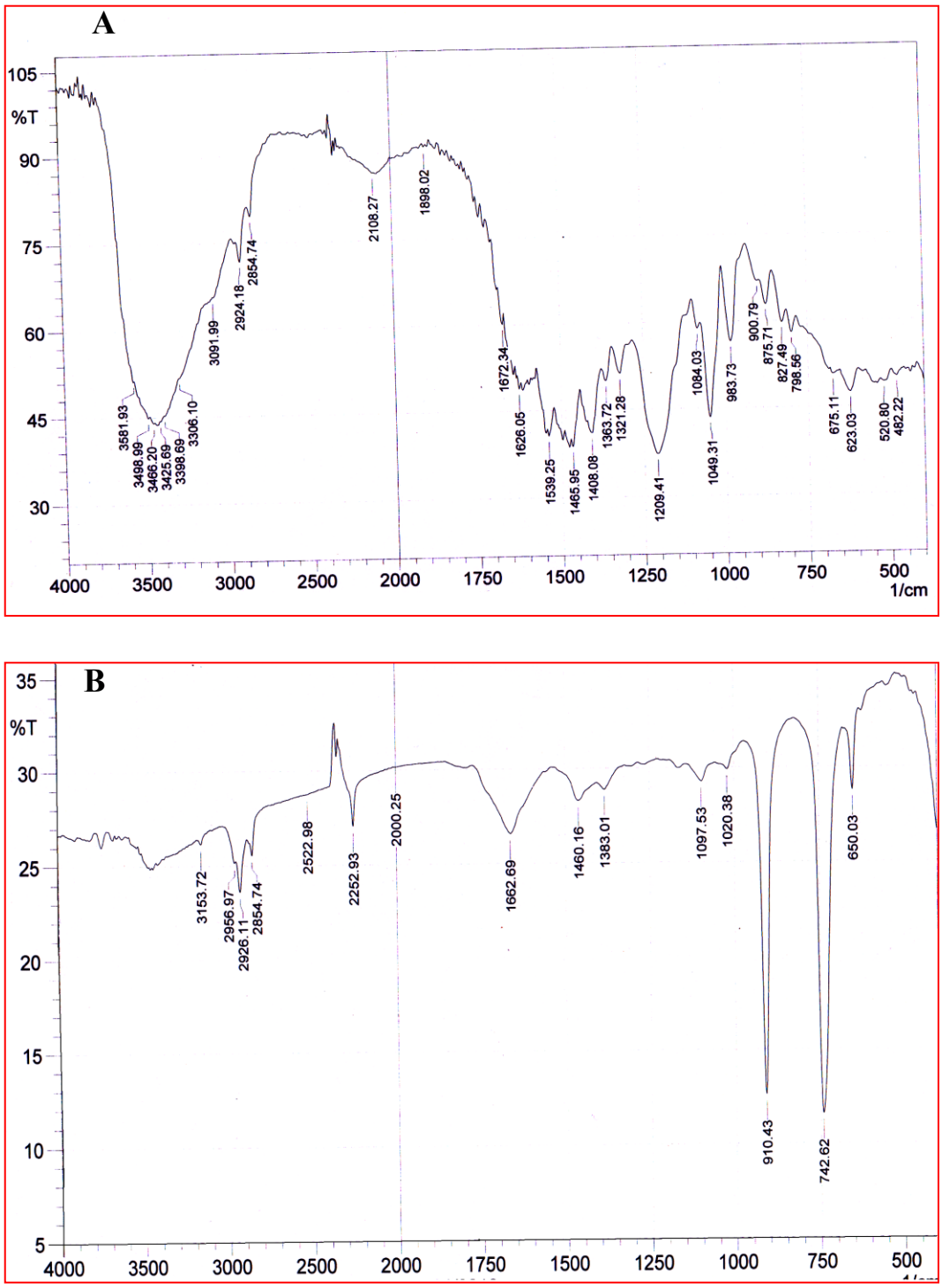
A



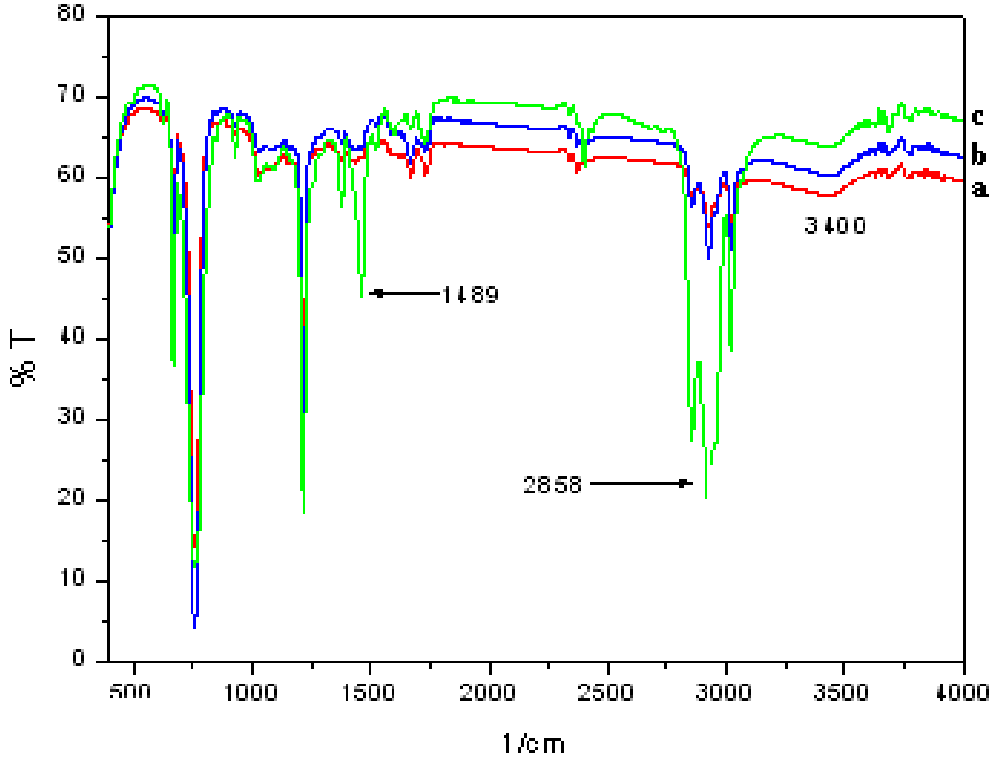
B



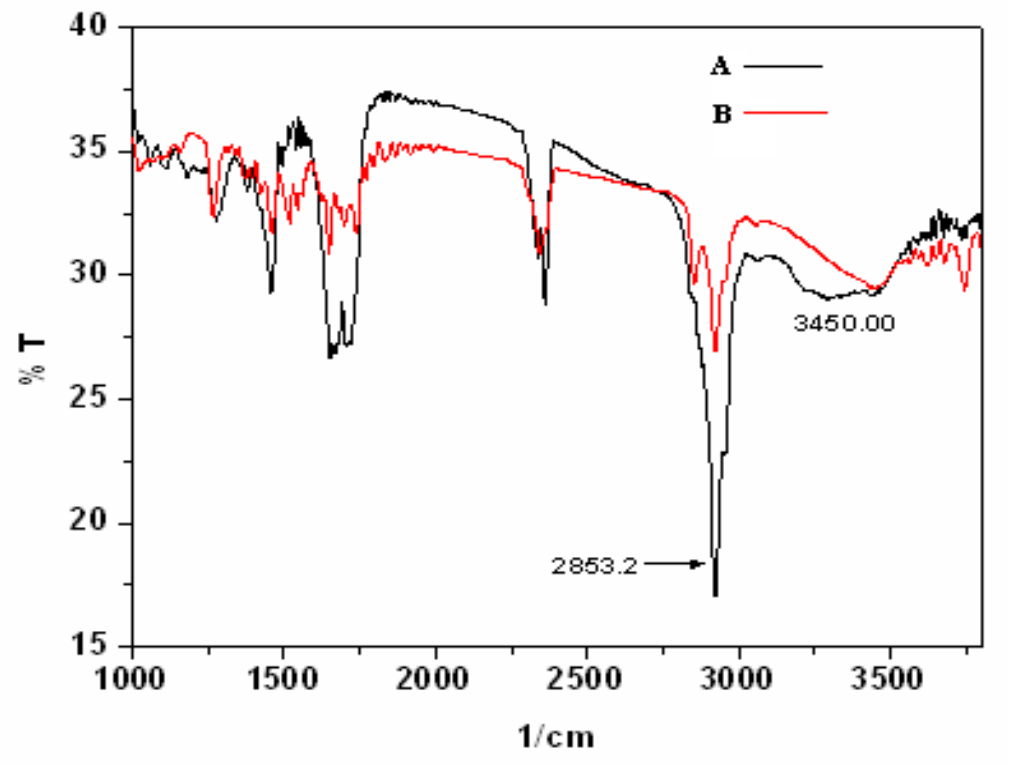
2) FTIR frequencies of RR 2 A) before degradation B) after degradation



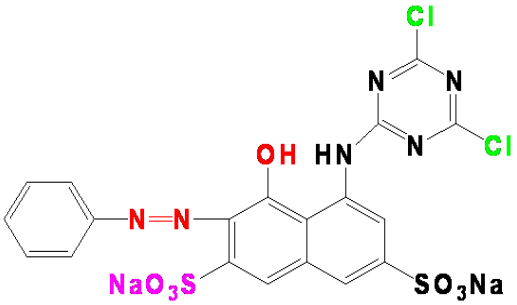
3) FTIR frequencies of RR 11 A) before degradation B) after degradation



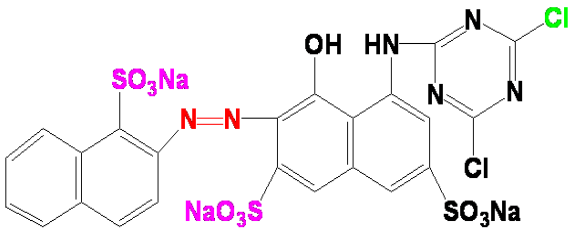
4) FTIR frequencies of SY A) before degradation B) after degradation



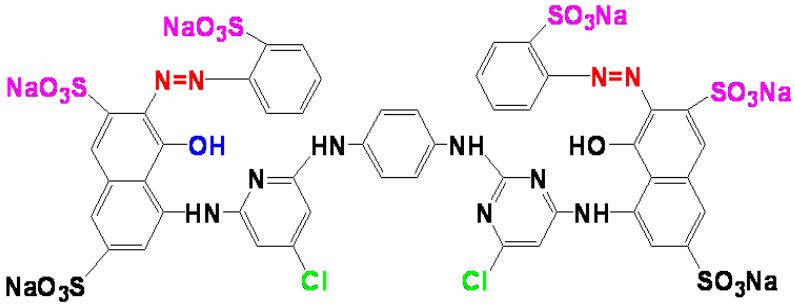
5) FTIR frequencies of TAR A) before degradation B) after degradation



Reactive Red 2



Reactive Red 11



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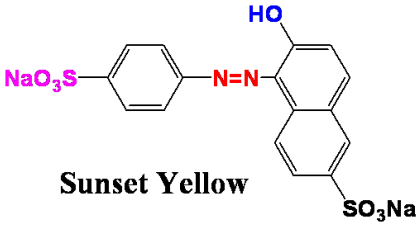
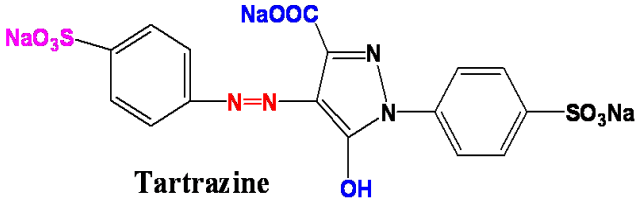
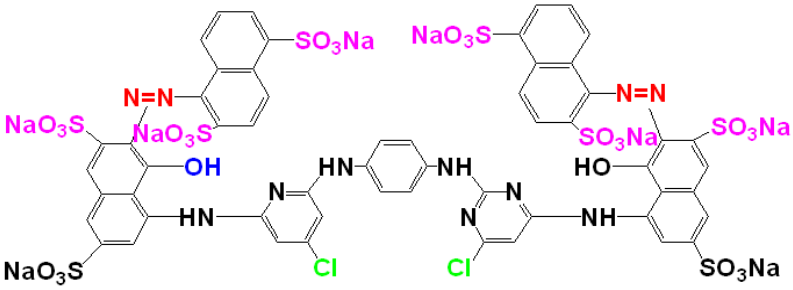


Sunset Yellow



Tartrazine



Reactive Red 141

Fig. S 5 Molecular structures of azo dyes