Supplementary Materials

The effect of solvents on the thermal degradation products of two Amadori derivatives

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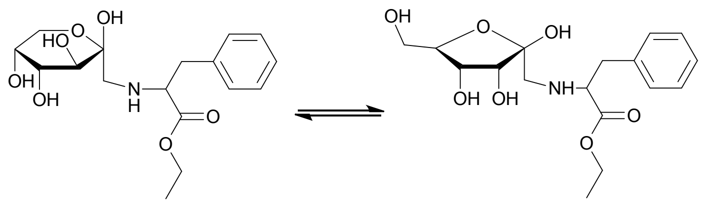
1. ^{1}H NMR, ^{13}C NMR, and TLC graphs of Derivative1.



Scheme S1 Pyranose fom (left) and furanose form (right) of Derivative1.

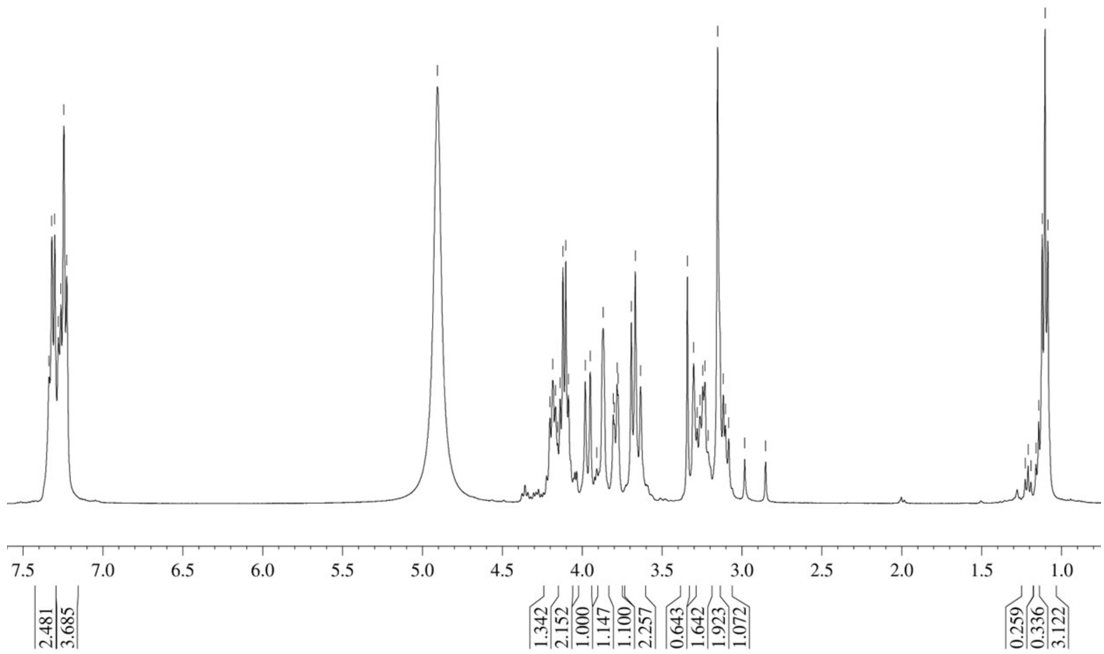


Fig. S1 ^{1}H NMR spectra of Derivative1 measured in MeOD at 25 °C.

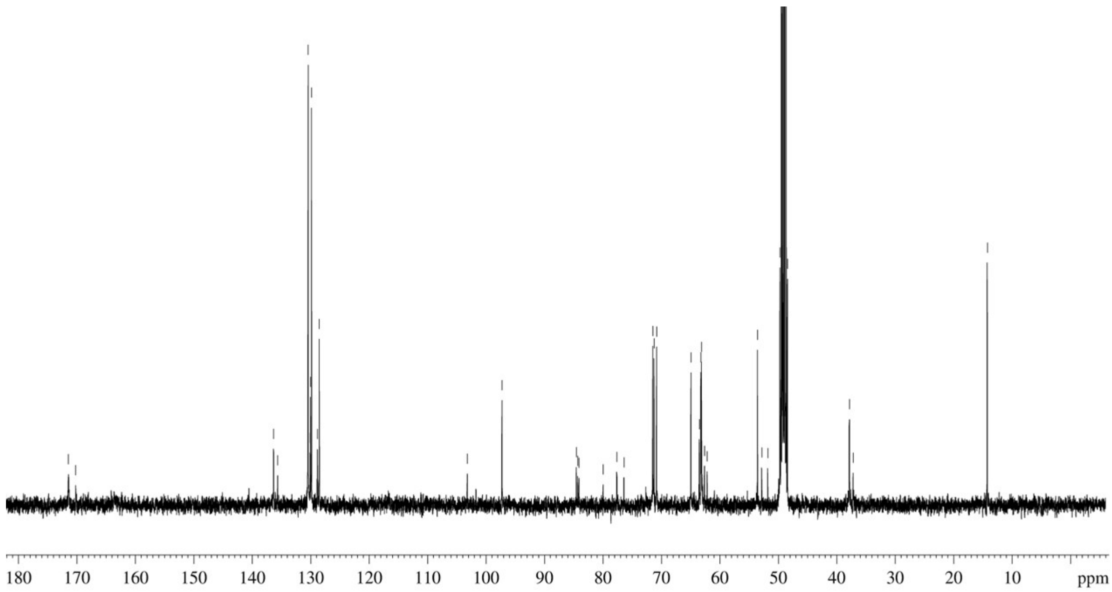


Fig. S2 ^{13}C NMR spectra of Derivative1 measured in MeOD at 25 °C.

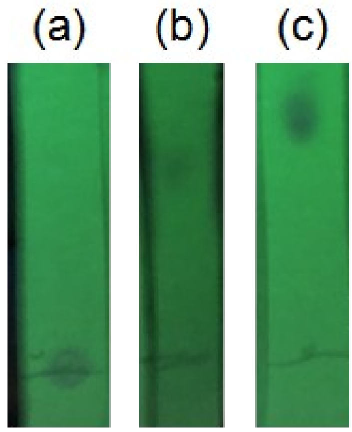


Fig. S3 TLC analysis of Derivative1 in different solvent systems. (a) Ethyl acetate : Petroleum ether = 1 : 3 (v/v); (b) Methanol : Ethyl acetate = 1 : 3 (v/v); (c) Methanol : Ethyl acetate = 1 : 1 (v/v).

2. ^{1}H NMR and ^{13}C NMR of Derivative2.

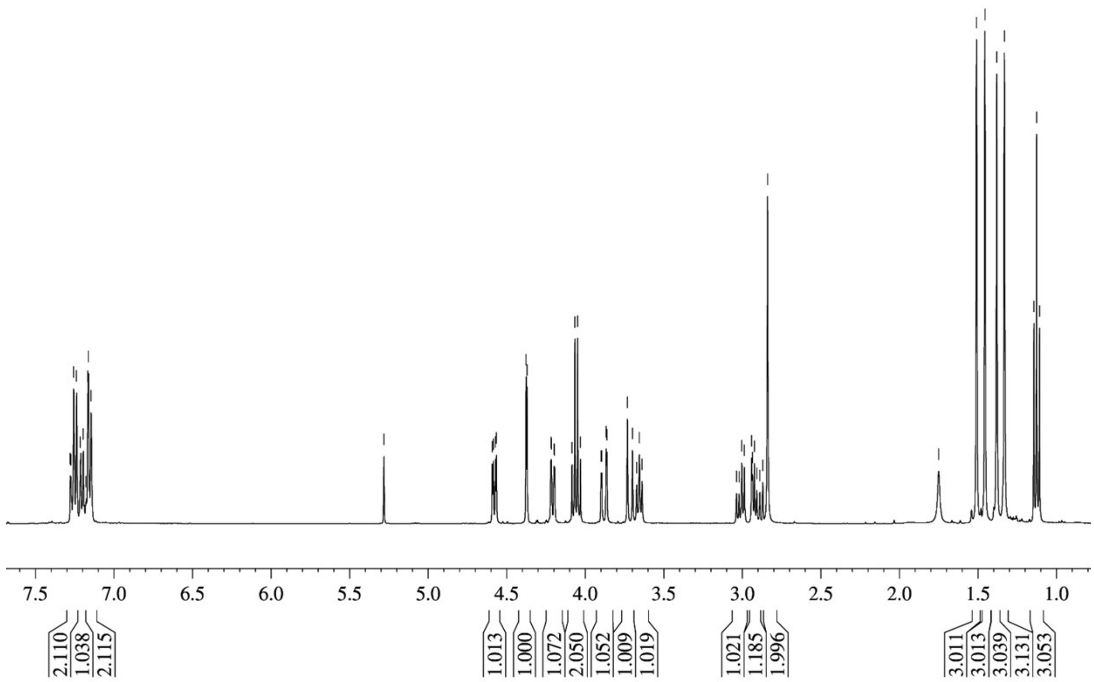


Fig. S4 ^{1}H NMR spectra of Derivative2 measured in $CDCl_3$ at 25 °C.

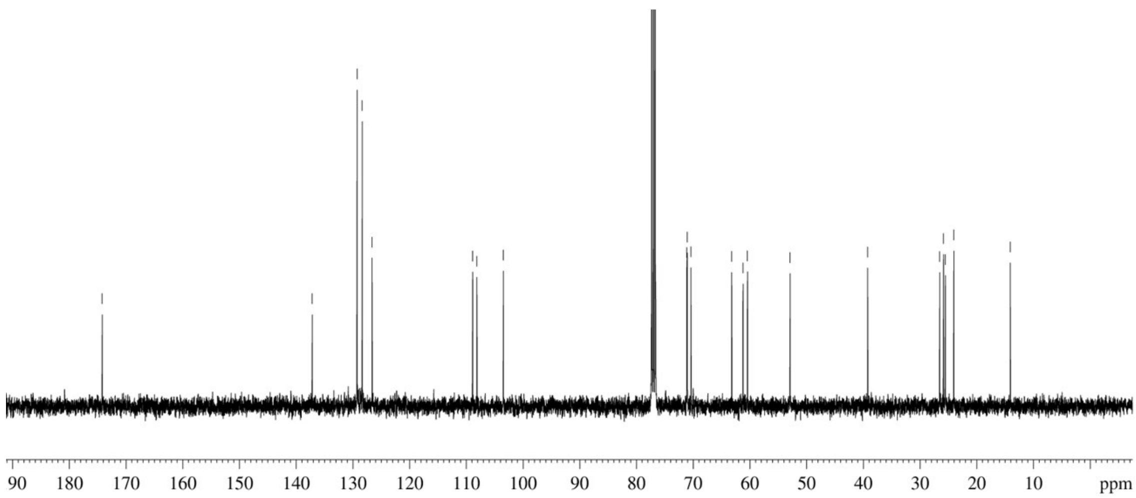


Fig. S5 ^{13}C NMR spectra of Derivative2 measured in $CDCl_3$ at 25 °C.

3. Total ion chromatograms from pyrolysis of Derivative1 and Derivative2 at 350 °C.

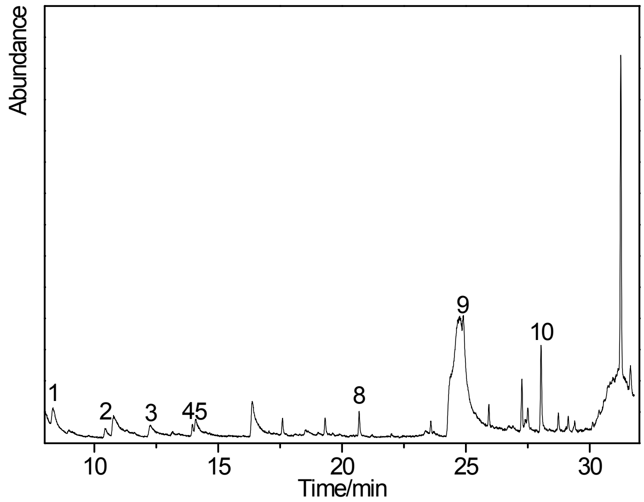


Fig. S6 Total ion chromatograms from pyrolysis of Derivative1 at 350 °C (Numbers are correspondence to the compounds in Table 2; The unlabeled peaks refer to the compounds with the match values below 80%.)

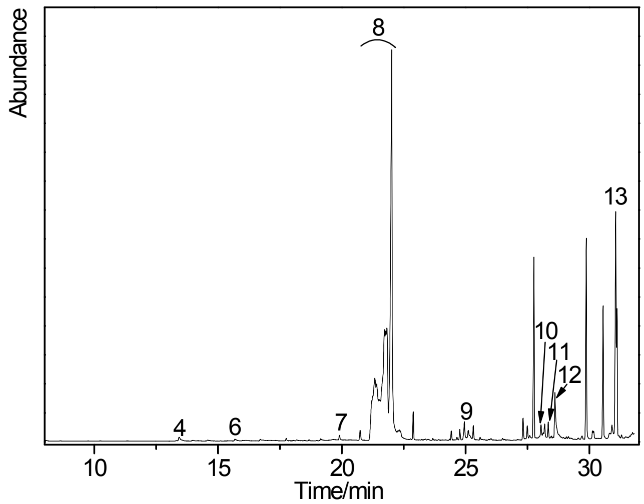


Fig. S7 Total ion chromatograms from pyrolysis of Derivative2 at 350 °C (Numbers are correspondence to the compounds in Table 2; The unlabeled peaks refer to the compounds with the match values below 80%.)

4. Total ion chromatograms from thermal degradation of Derivative1 and Derivative2 in water at 120 and 180 °C.

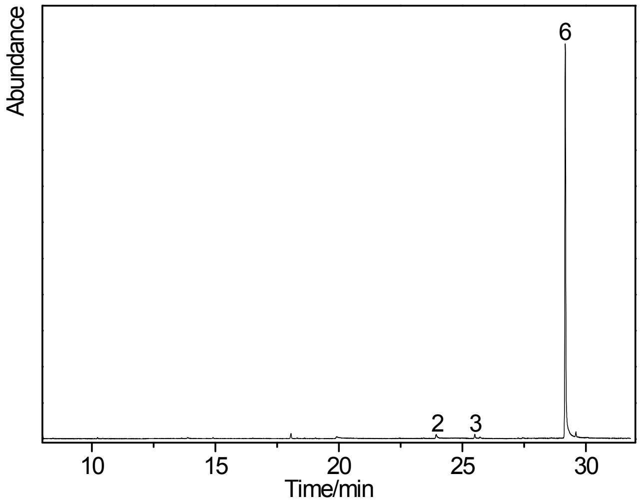


Fig. S8 Total ion chromatograms from thermal degradation of Derivative1 in water at 120 °C (Numbers are correspondence to the compounds in Table 3)

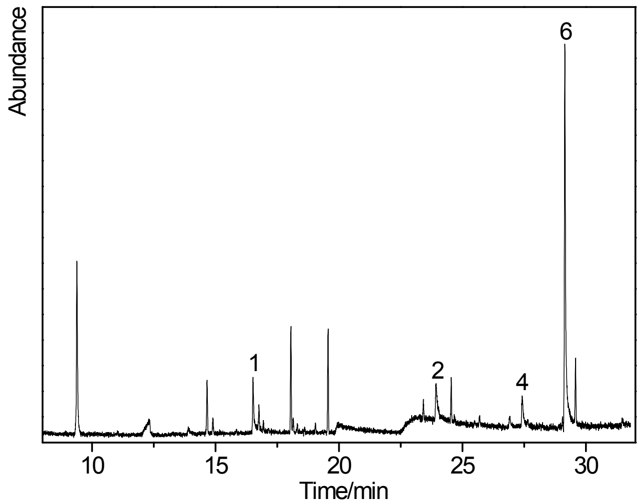


Fig. S9 Total ion chromatograms from thermal degradation of Derivative1 in water at 180 °C (Numbers are correspondence to the compounds in Table 3; The unlabeled peaks refer to the compounds with the match values below 80%.)

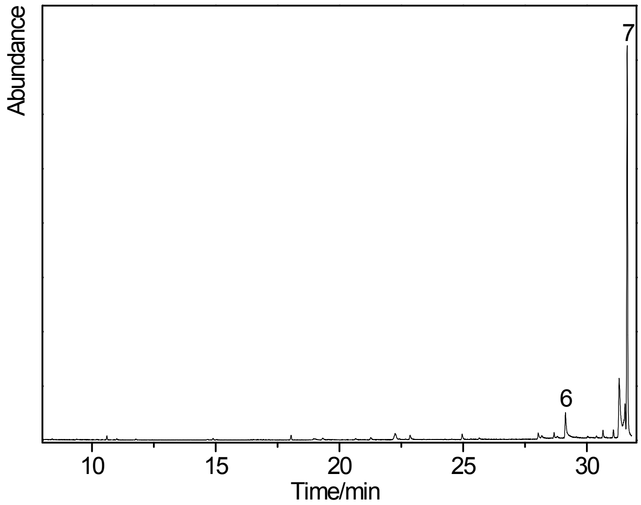


Fig. S10 Total ion chromatograms from thermal degradation of Derivative2 in water at 120 °C (Numbers are correspondence to the compounds in Table 3; The unlabeled peaks refer to the compounds with the match values below 80%.)

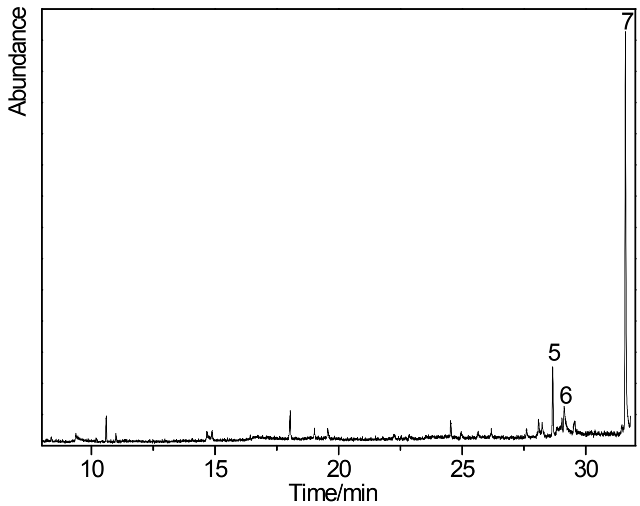


Fig. S11 Total ion chromatograms from thermal degradation of Derivative2 in water at 180 °C (Numbers are correspondence to the compounds in Table 3; The unlabeled peaks refer to the compounds with the match values below 80%.)

5. Total ion chromatograms from thermal degradation of Derivative1 and Derivative2 in ethanol at 120 and 180 °C.

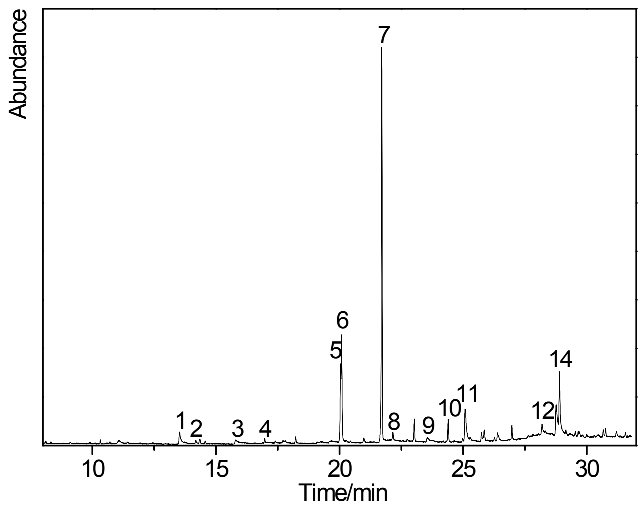


Fig. S12 Total ion chromatograms from thermal degradation of Derivative1 in ethanol at 120 °C (Numbers are correspondence to the compounds in Table 4; The unlabeled peaks refer to the compounds with the match values below 80%.)

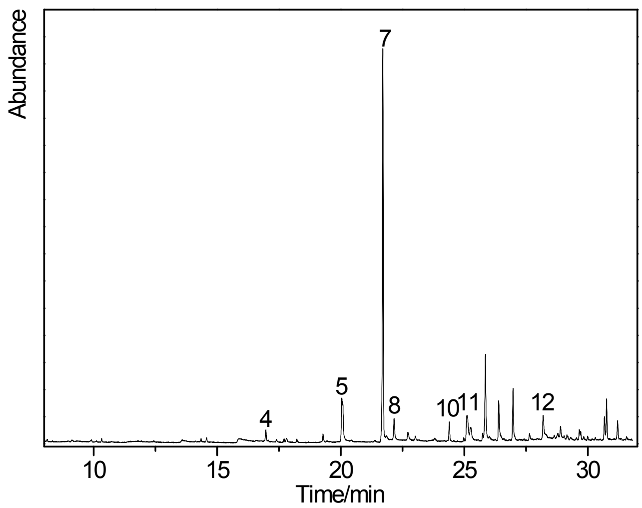


Fig. S13 Total ion chromatograms from thermal degradation of Derivative1 in ethanol at 180 °C (Numbers are correspondence to the compounds in Table 4; The unlabeled peaks refer to the compounds with the match values below 80%.)

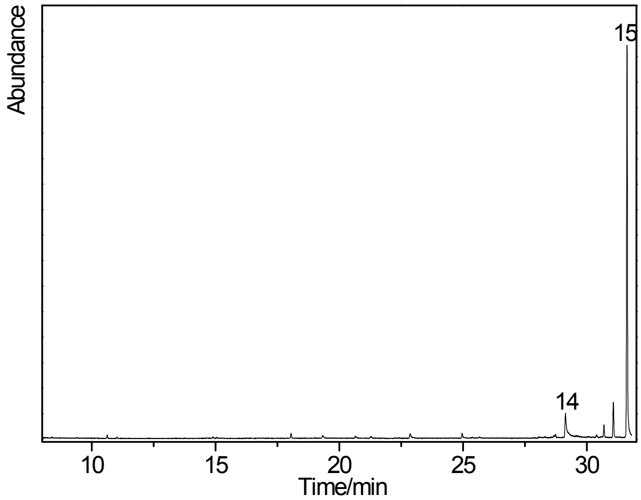


Fig. S14 Total ion chromatograms from thermal degradation of Derivative2 in ethanol at 120 °C (Numbers are correspondence to the compounds in Table 4; The unlabeled peaks refer to the compounds with the match values below 80%.)

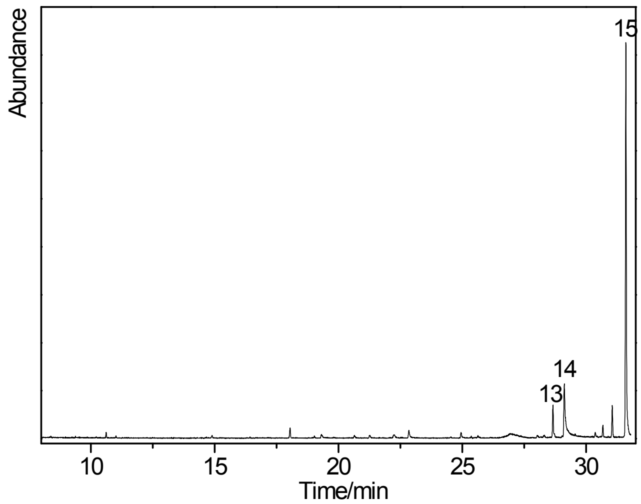


Fig. S15 Total ion chromatograms from thermal degradation of Derivative2 in ethanol at 180 °C (Numbers are correspondence to the compounds in Table 4; The unlabeled peaks refer to the compounds with the match values below 80%.)

6. Mass spectra of degradation compounds extracted from total ion chromatograms.

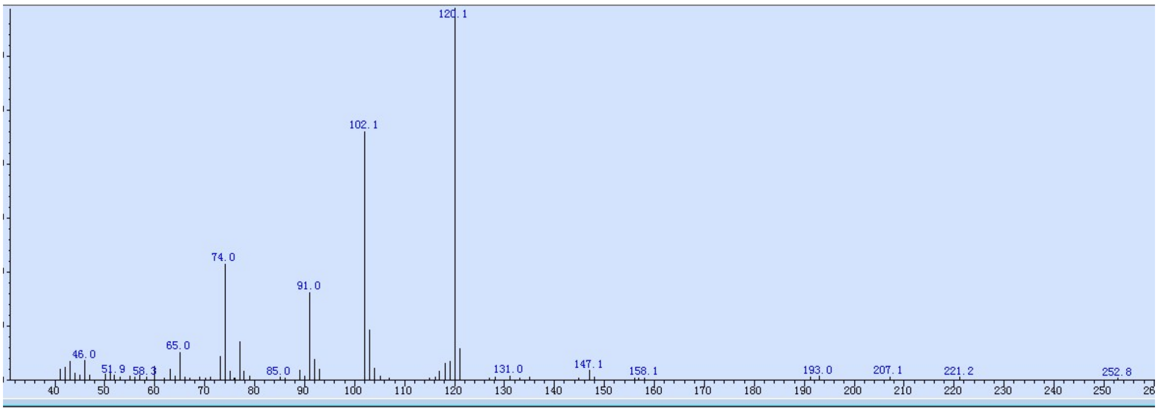


Fig. S16 Mass spectrum of phenylalanine ethyl ester extracted from total ion chromatogram.

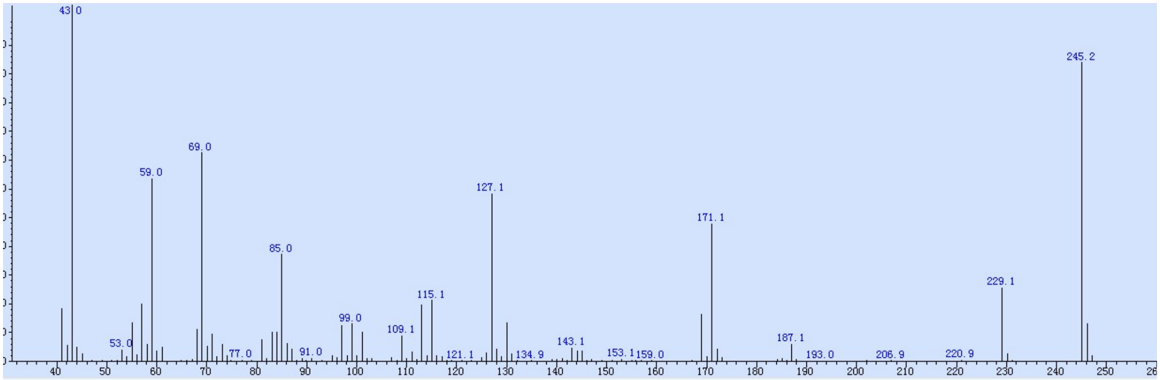


Fig. S17 Mass spectrum of diacetonefructose extracted from total ion chromatogram.

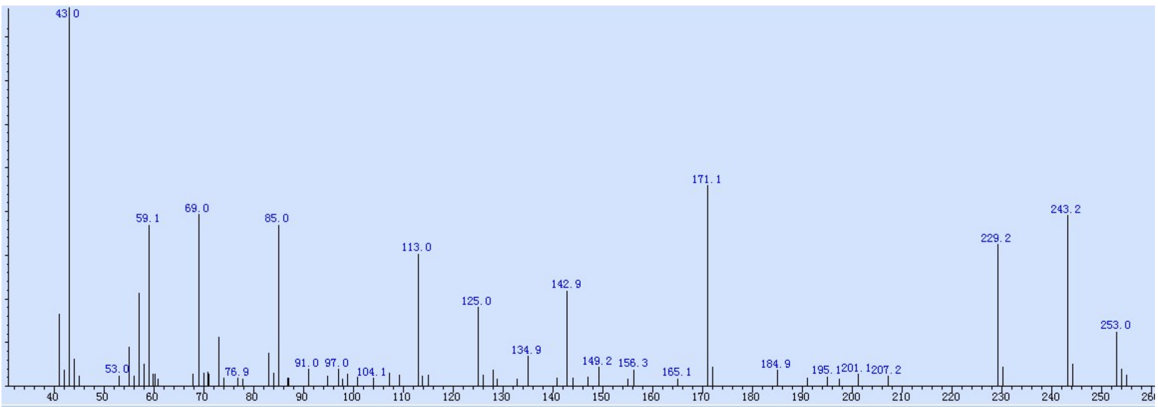


Fig. S18 Mass spectrum of 2,3:4,5-bis-*O*-(1-methylethylidene)-β-D-*arabino*-Hexos-2-ulo-2,6-pyranose extracted from total ion chromatogram.

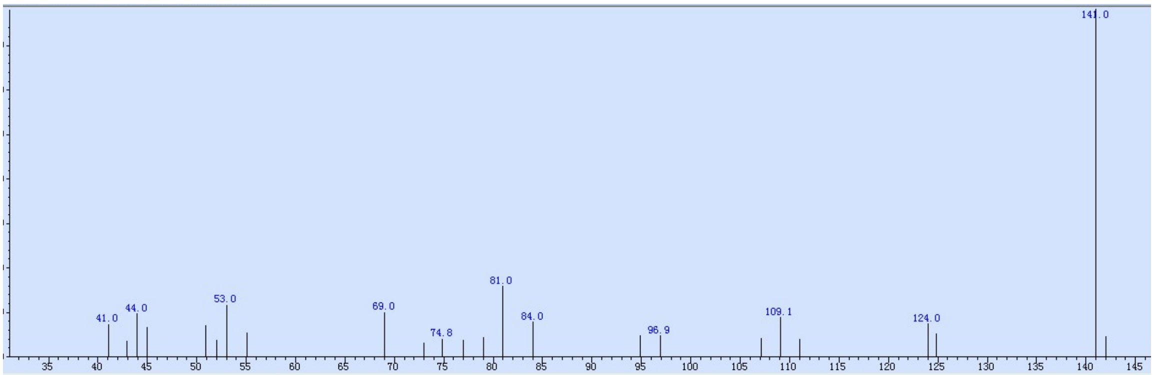


Fig. S19 Mass spectrum of 5-(dimethoxymethyl)-2-furanmethanol extracted from total ion chromatogram.

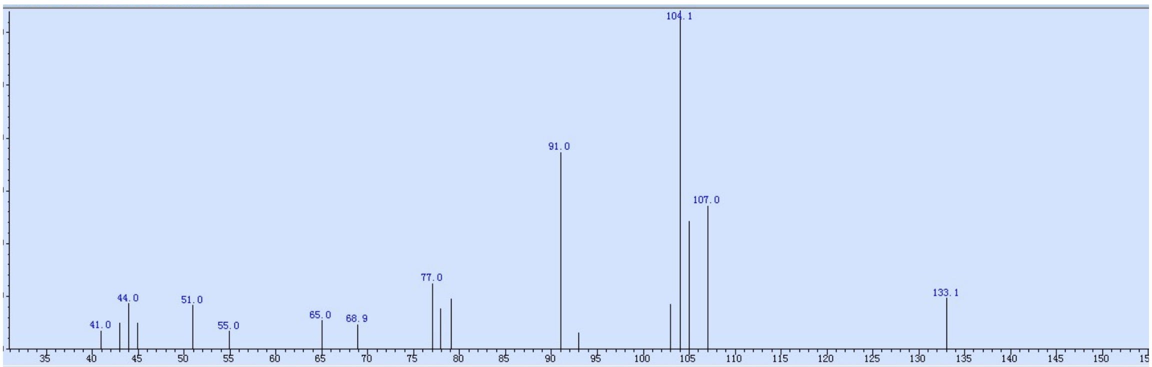


Fig. S20 Mass spectrum of ethyl-3-phenylpropionate extracted from total ion chromatogram.

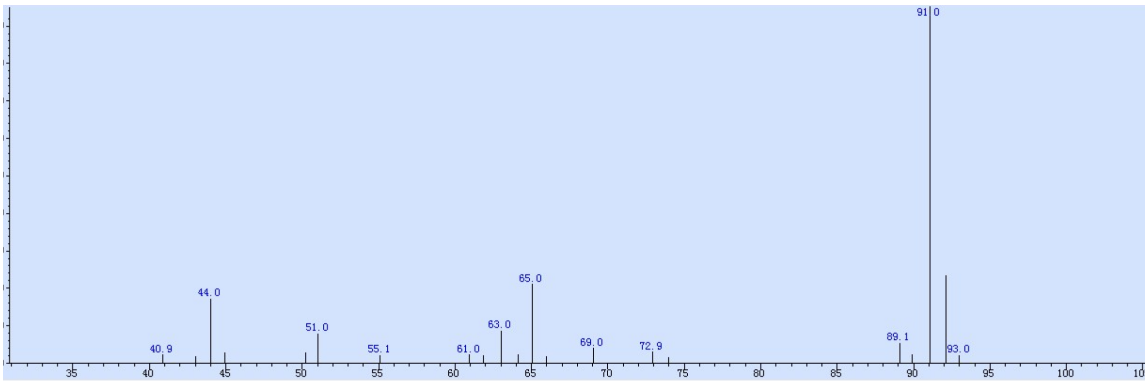


Fig. S21 Mass spectrum of phenylacetaldehyde extracted from total ion chromatogram.

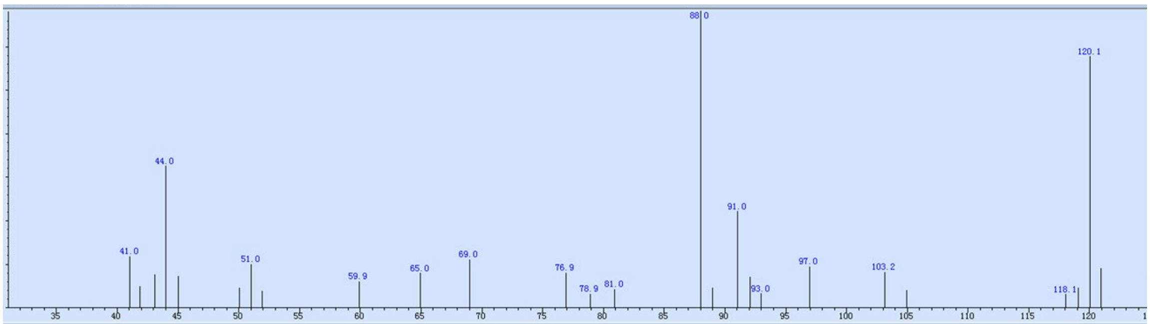


Fig. S22 Mass spectrum of methyl-2-amino-3-phenylpropanoate extracted from total ion chromatogram.

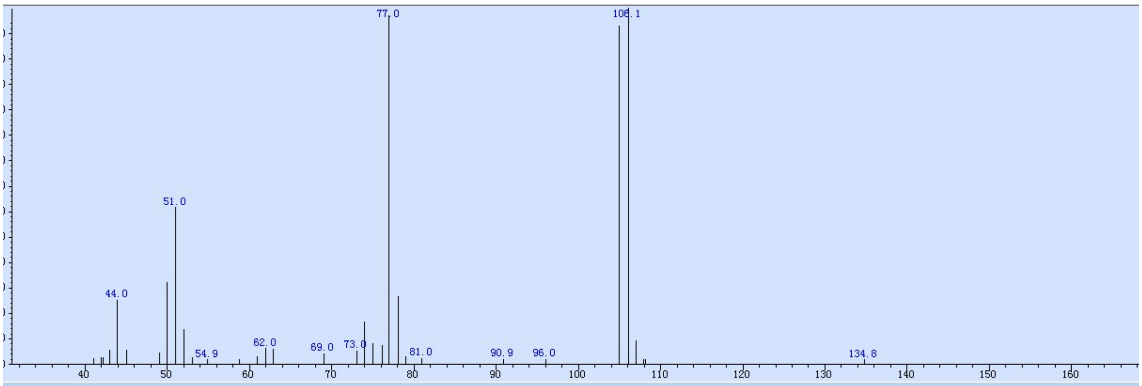


Fig. S23 Mass spectrum of benzaldehyde extracted from total ion chromatogram.

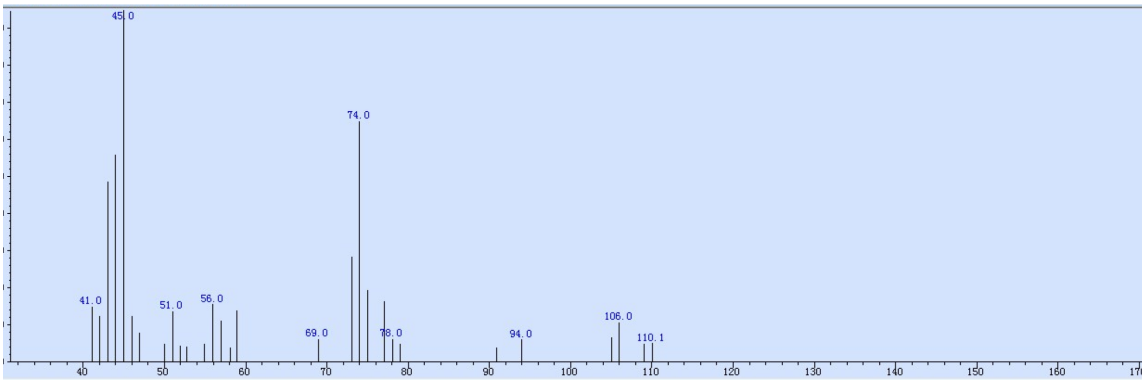


Fig. S24 Mass spectrum of diethyl oxalate extracted from total ion chromatogram.

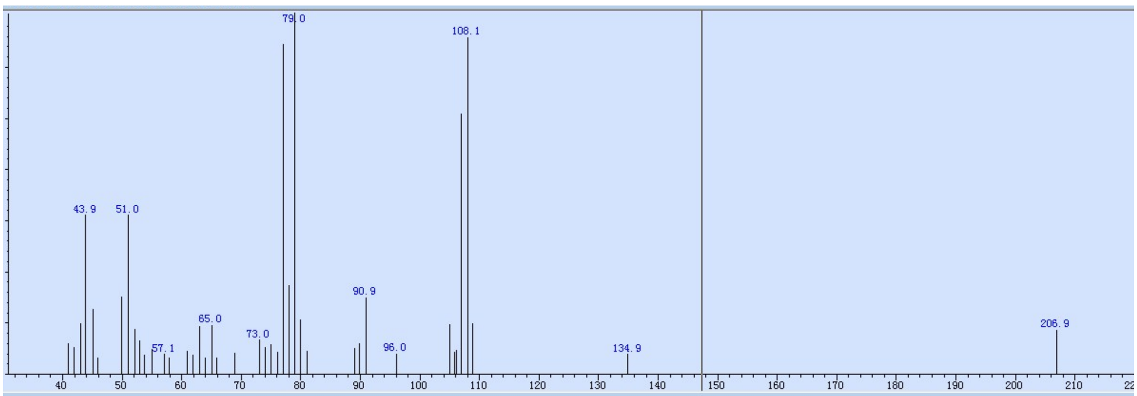


Fig. S25 Mass spectrum of phenylmethanol extracted from total ion chromatogram.

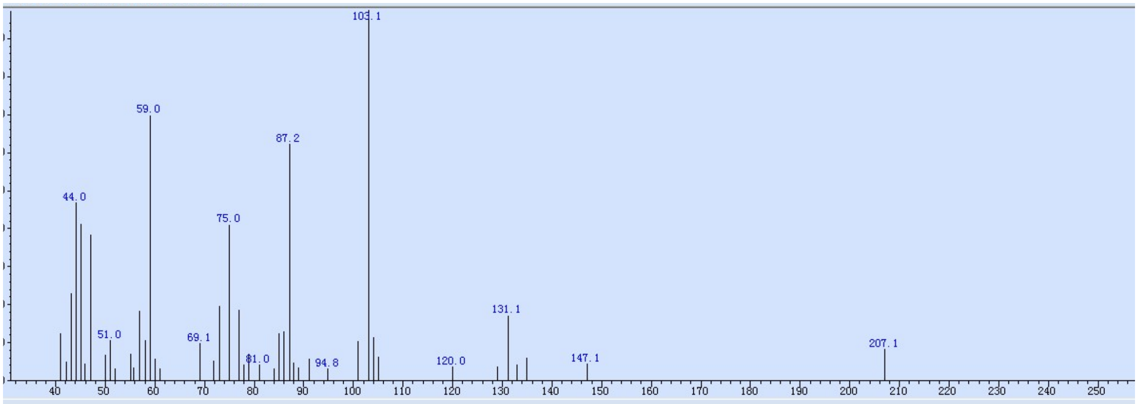


Fig. S26 Mass spectrum of 1,1,3-triethoxypropane extracted from total ion chromatogram.

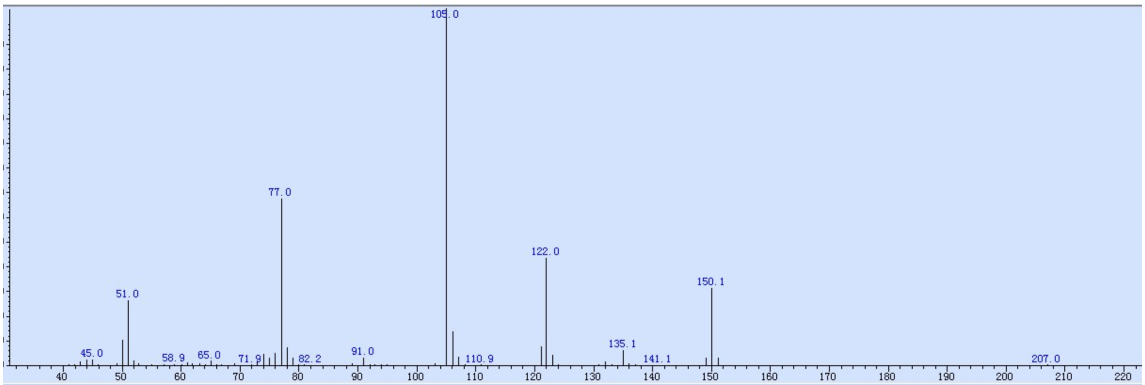


Fig. S27 Mass spectrum of ethyl benzoate extracted from total ion chromatogram.

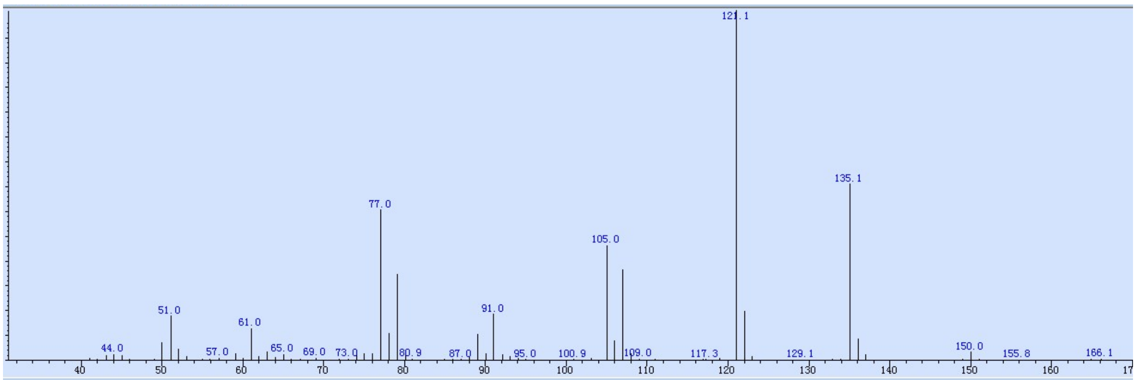


Fig. S28 Mass spectrum of 2-methoxy-2-phenylacetic acid extracted from total ion chromatogram.

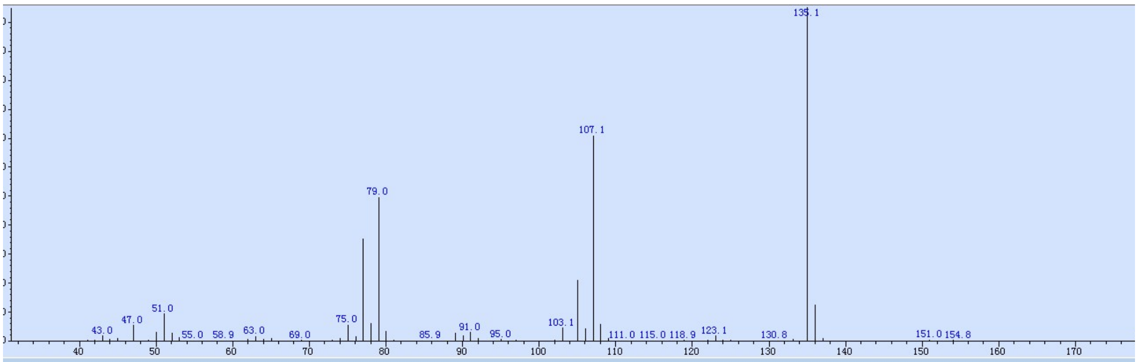


Fig. S29 Mass spectrum of benzaldehyde diethyl acetal extracted from total ion chromatogram.

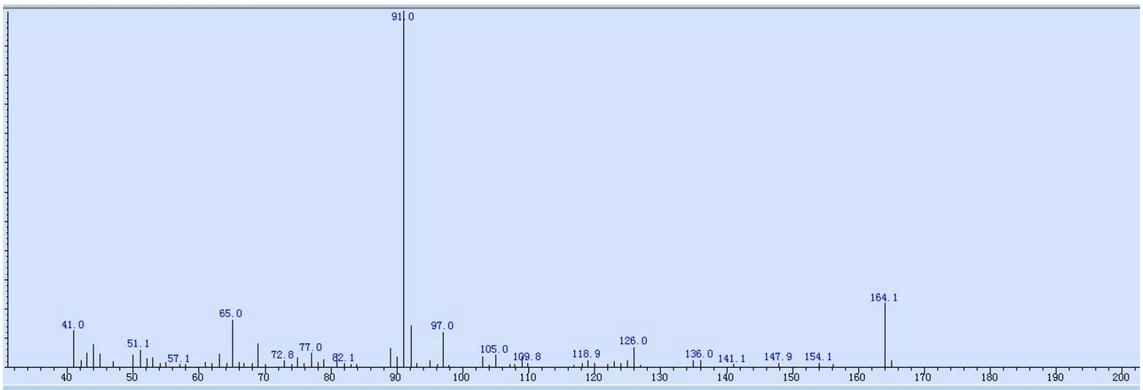


Fig. S30 Mass spectrum of ethyl phenylacetate extracted from total ion chromatogram.

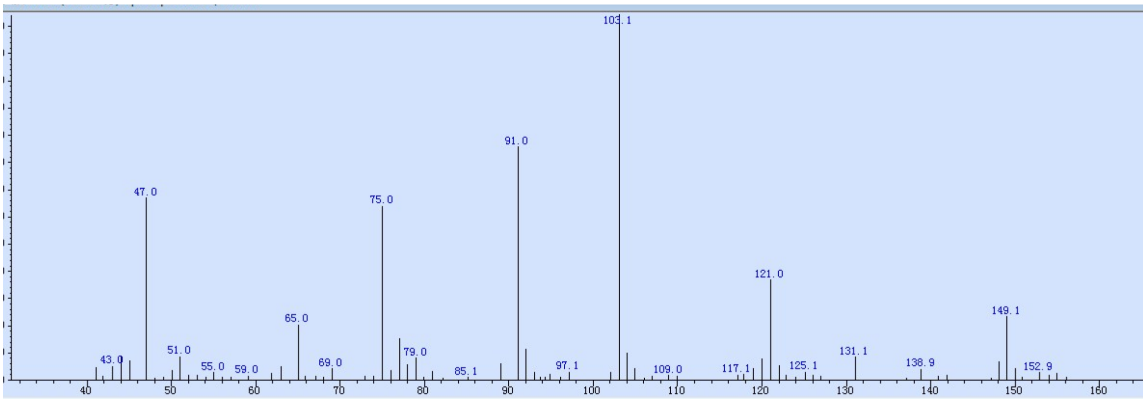


Fig. S31 Mass spectrum of (2,2-diethoxyethyl)benzene extracted from total ion chromatogram.

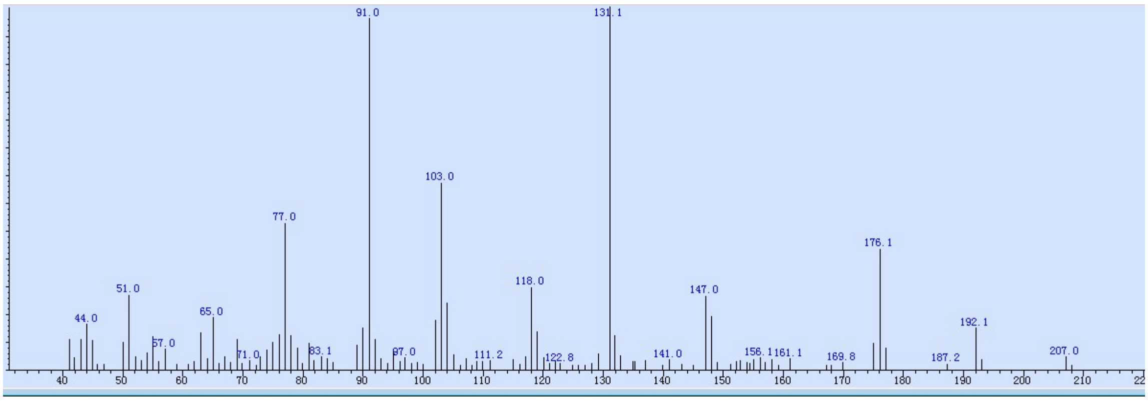


Fig. S32 Mass spectrum of ethyl cinnamate extracted from total ion chromatogram.

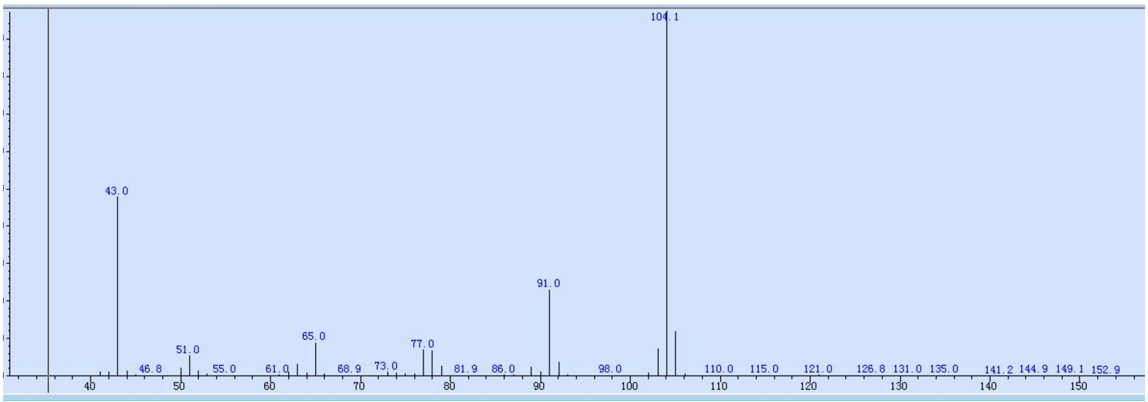


Fig. S33 Mass spectrum of phenethyl acetate extracted from total ion chromatogram.

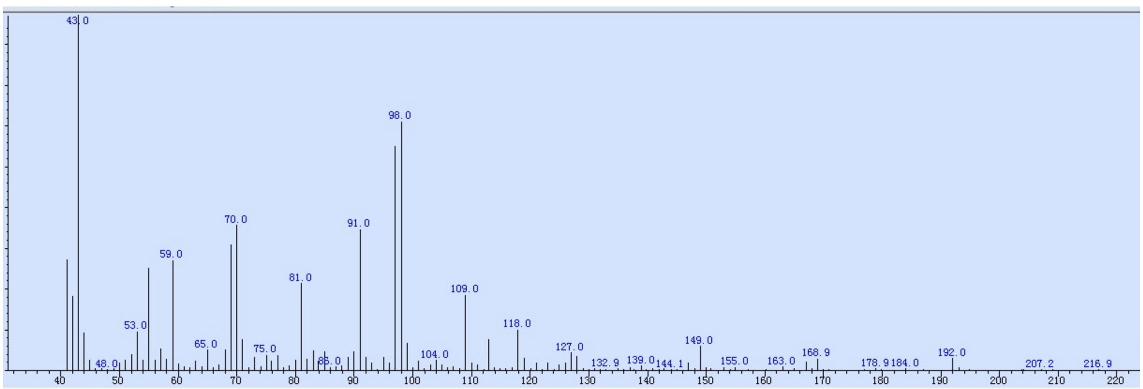


Fig. S34 Mass spectrum of 1-(2-furyl)-1,2-butanediol extracted from total ion chromatogram.

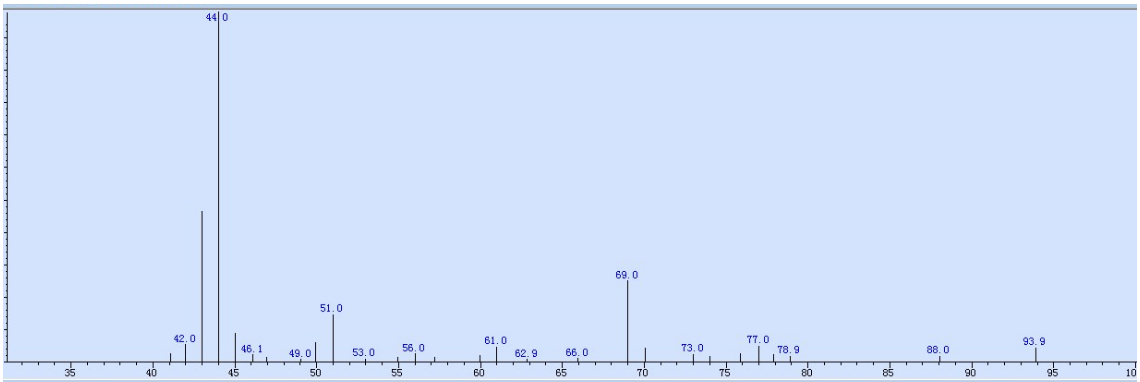


Fig. S35 Mass spectrum of tetrahydrofuran-3,4-diol extracted from total ion chromatogram.

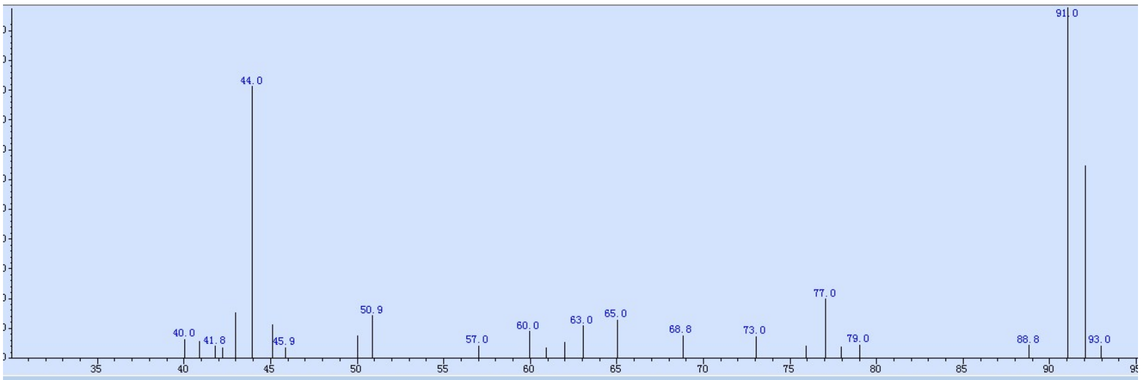


Fig. S36 Mass spectrum of toluene extracted from total ion chromatogram.

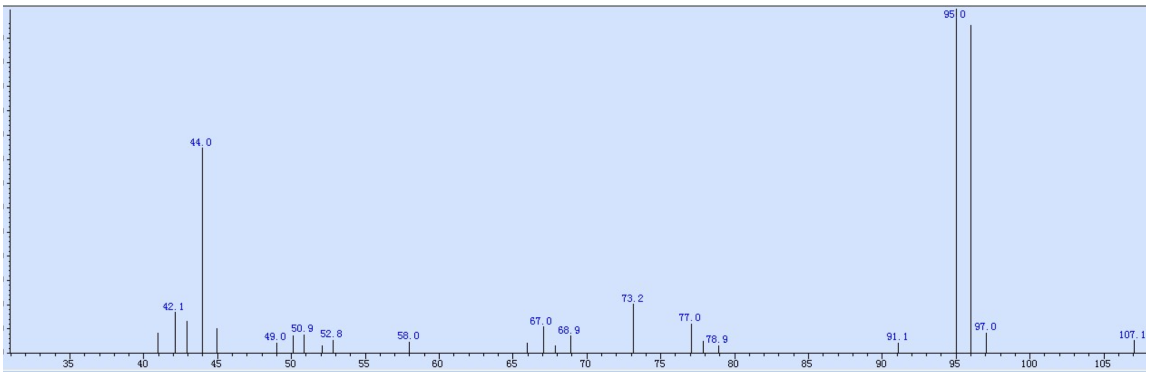


Fig. S37 Mass spectrum of 2-formyl furan extracted from total ion chromatogram.

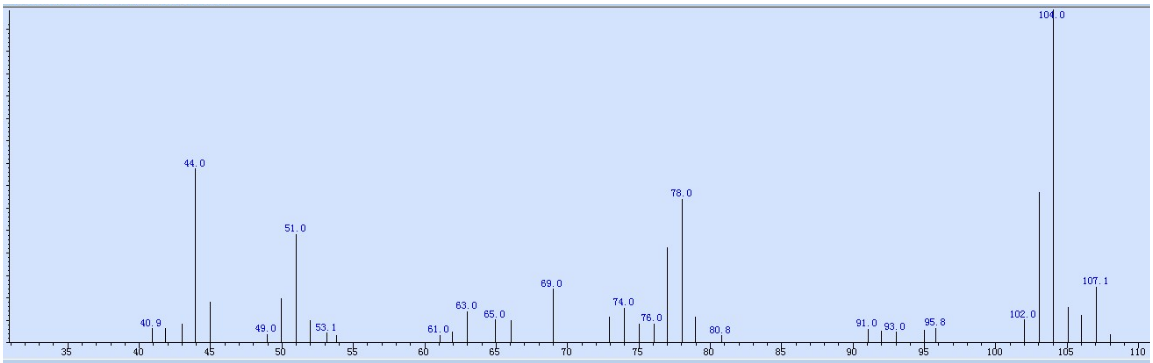
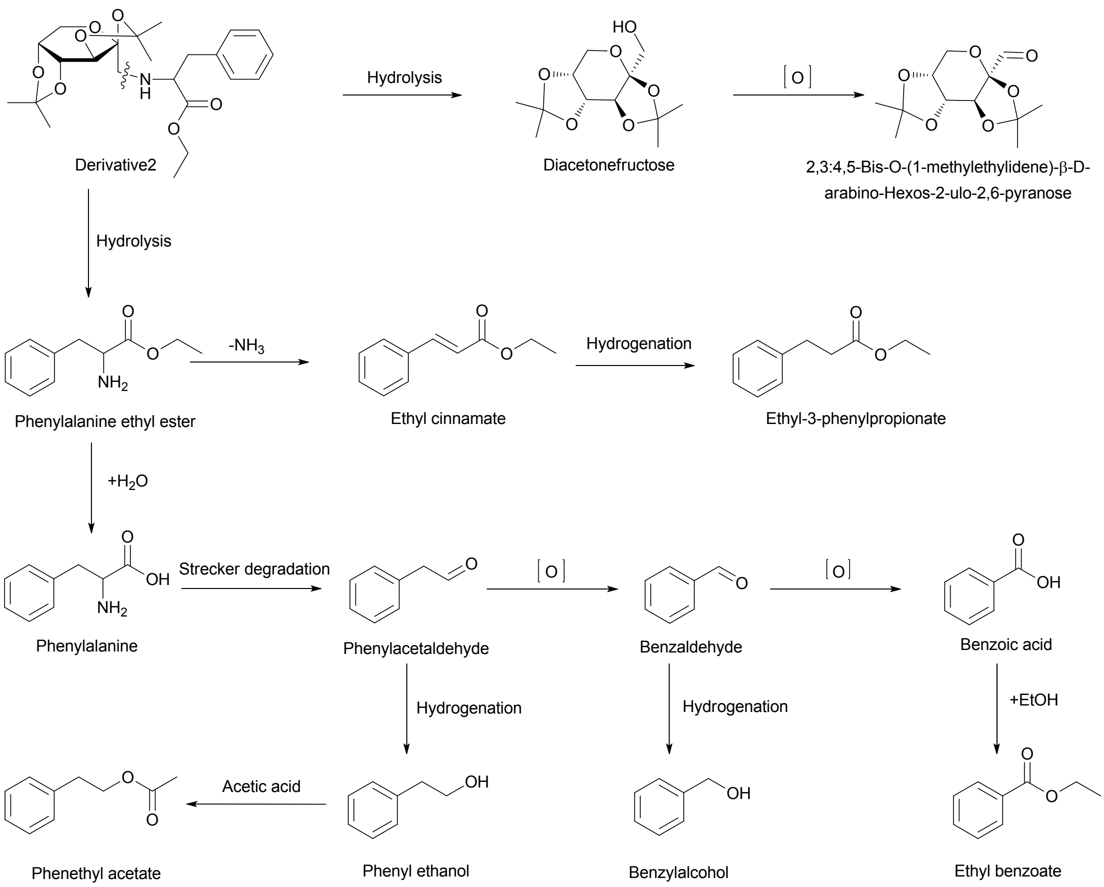


Fig. S38 Mass spectrum of styrene extracted from total ion chromatogram.

7. Proposed degradation mechanisms of Derivative2.



Scheme S2. Proposed degradation mechanisms of Derivative2.