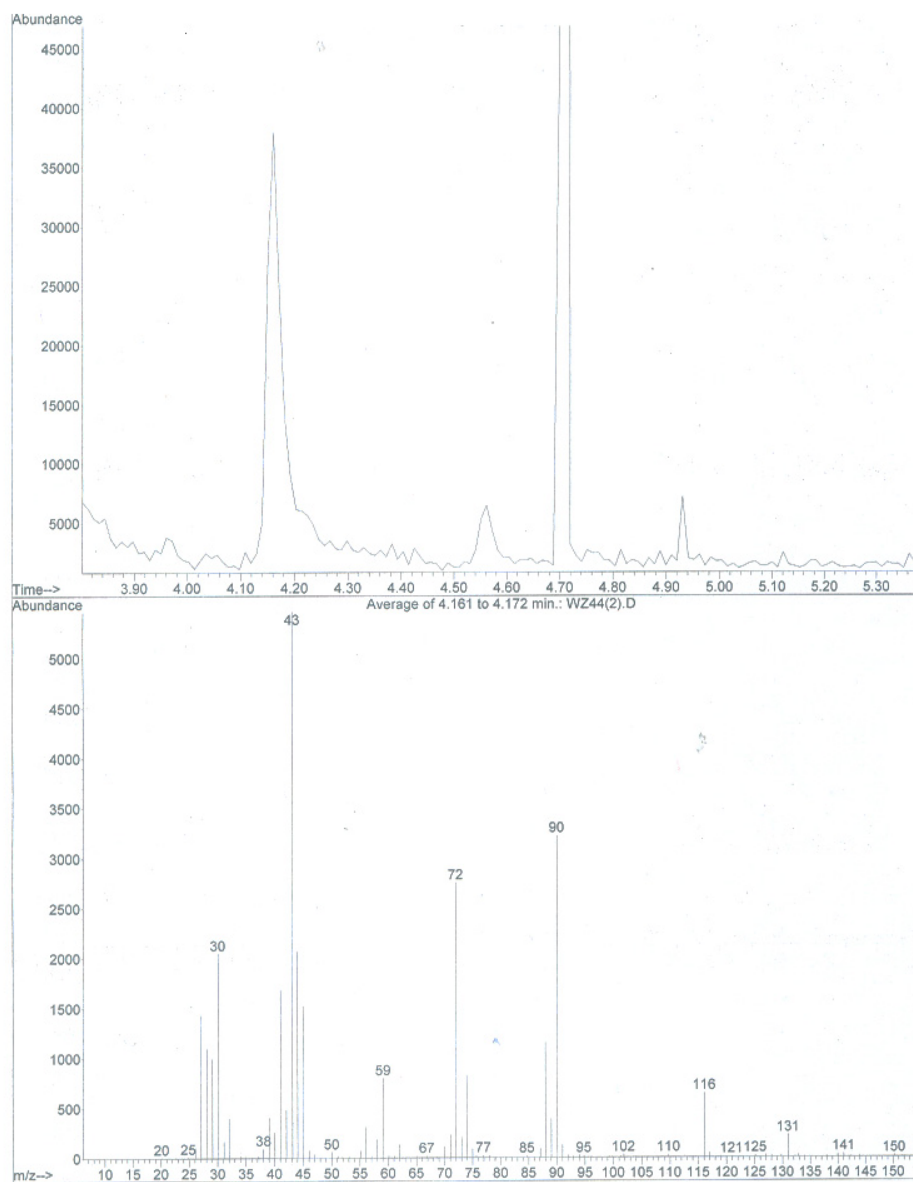
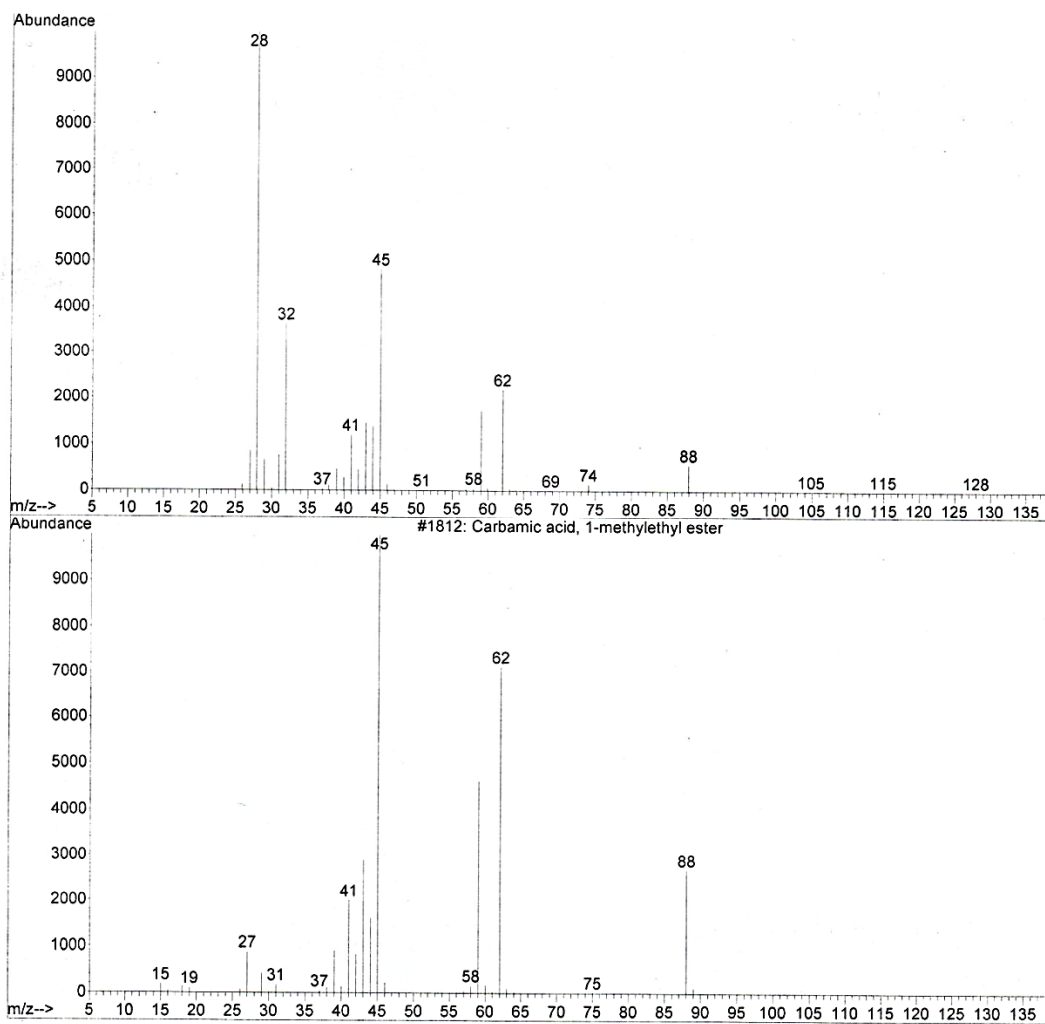


Supplementary S1

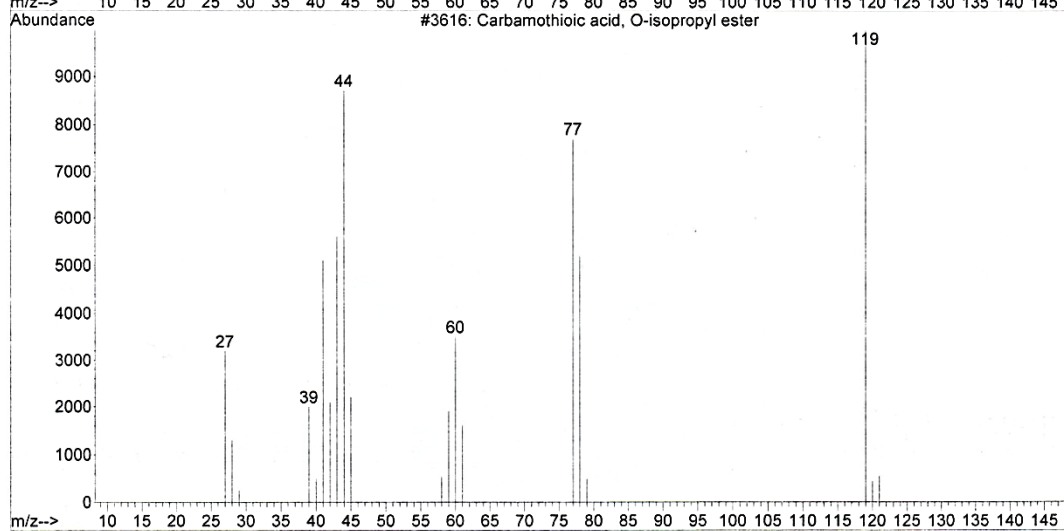
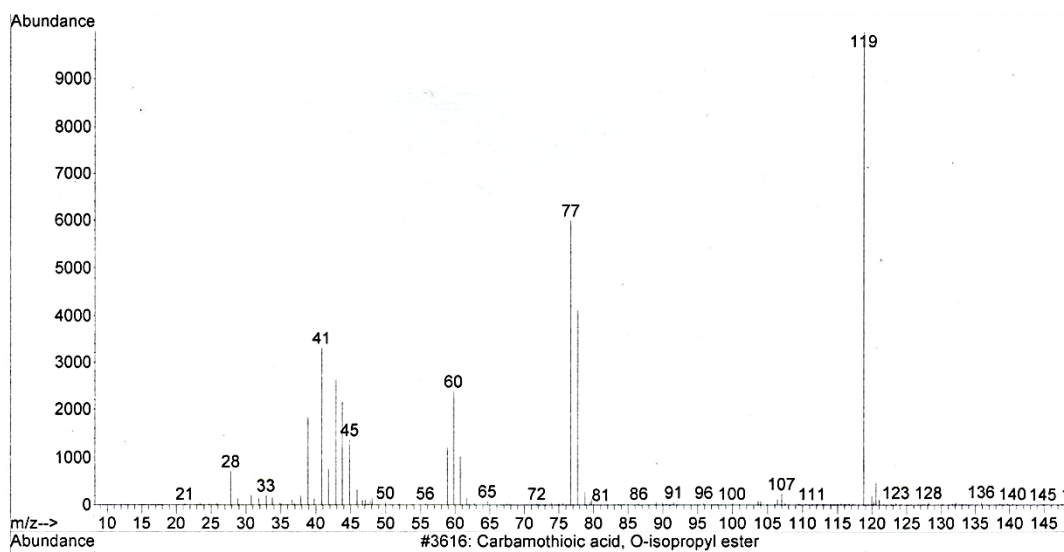
MASS SPECTRA OF COMPOUNDS 1-5



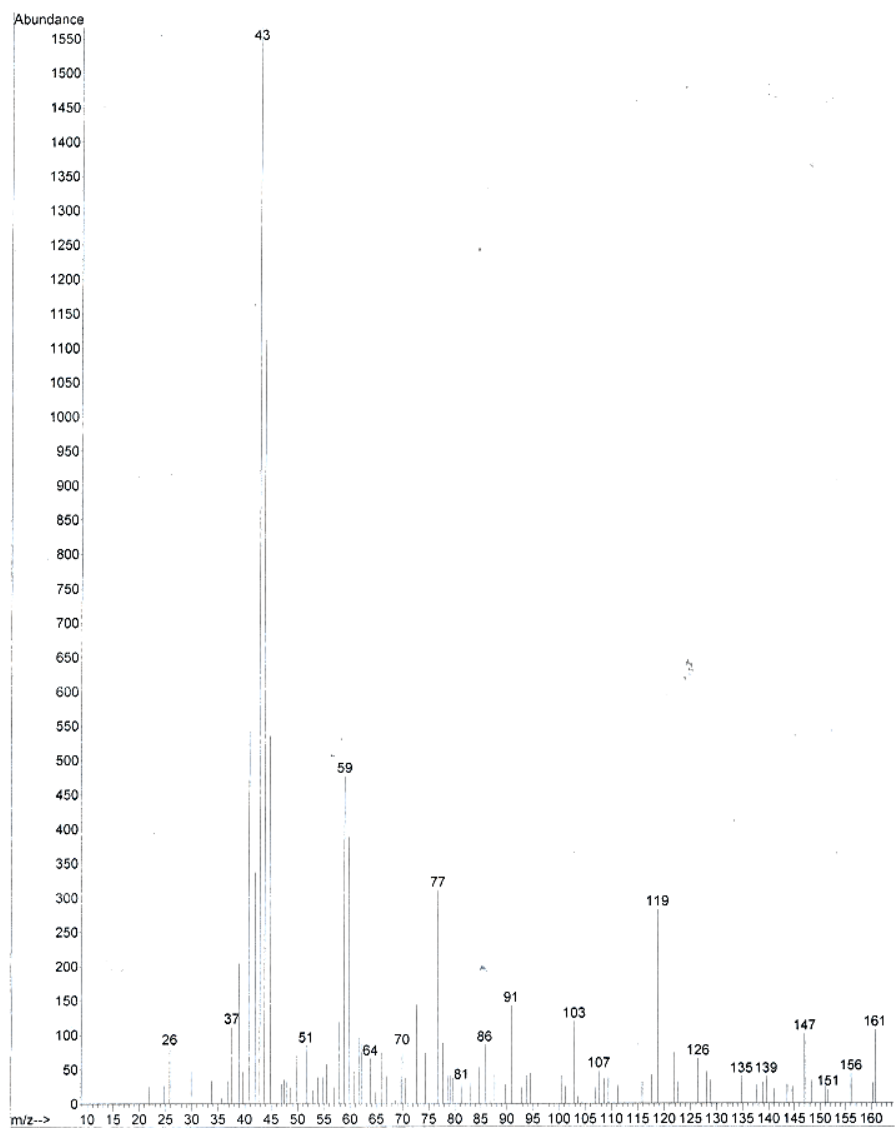
The GC-MS spectrometry of compound 1 (O-Isopropyl N-ethylcarbamate)



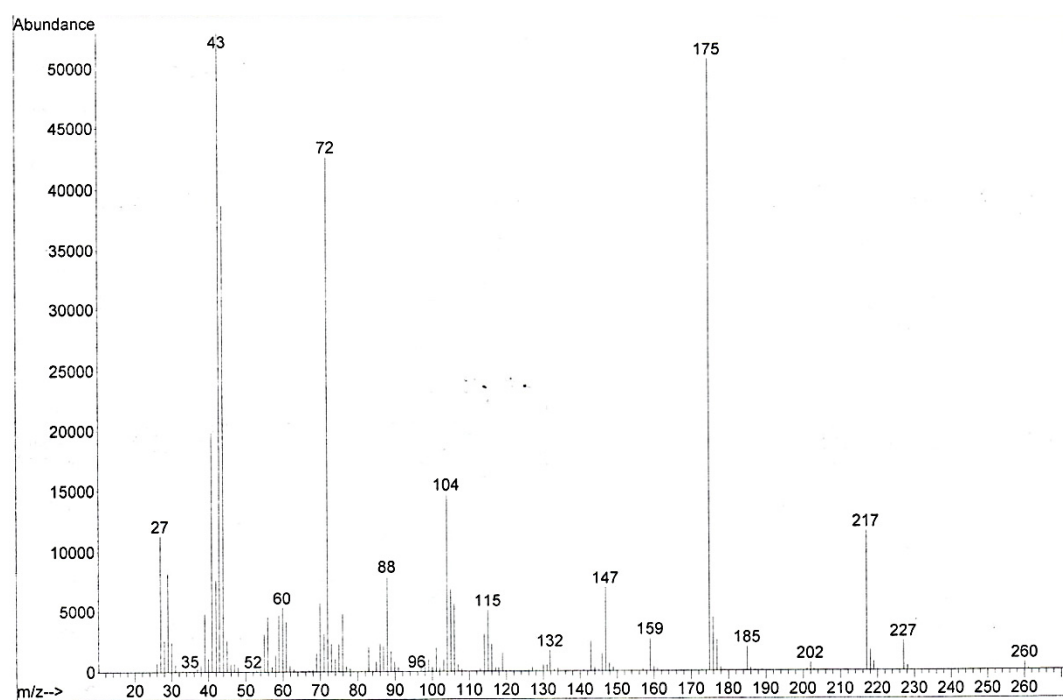
The GC-MS spectrometry of compound 2 (O-isopropyl thionocarbamate)



The GC-MS spectrometry of compound 3 (O-isopropyl carbamate)



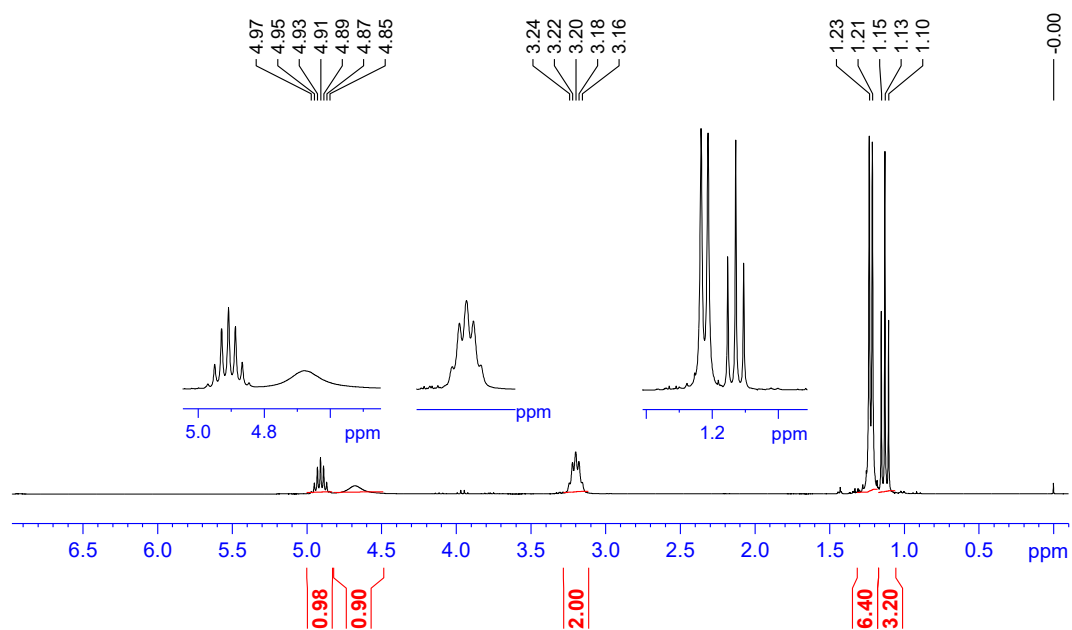
The GC-MS spectrometry of compound 4 (O-isopropyl N-acetylthionocarbamate)



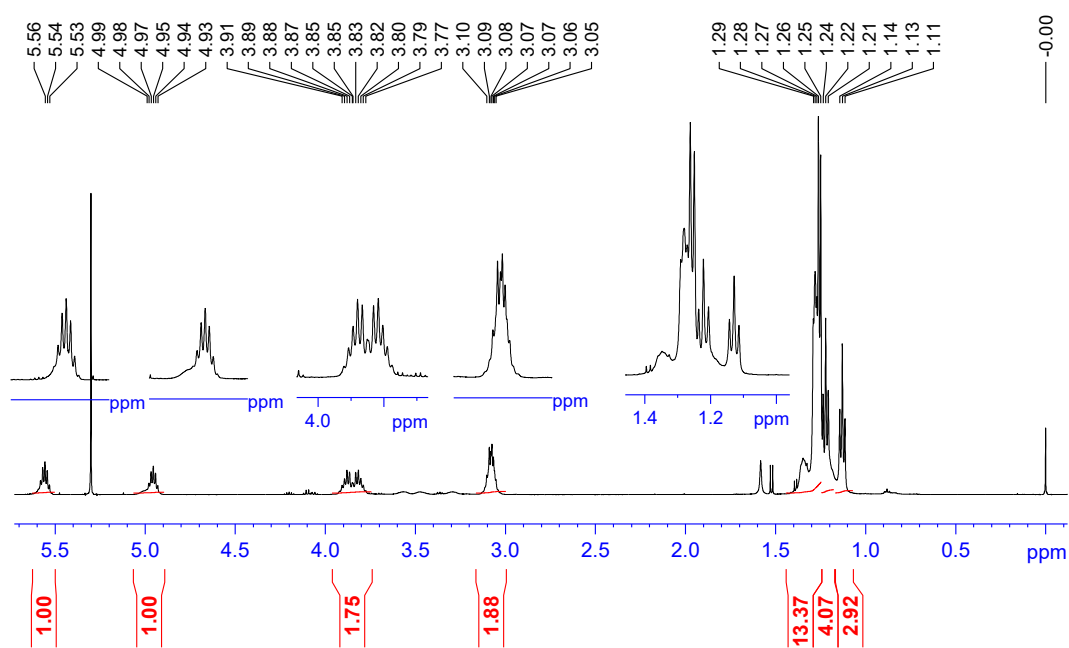
**The HPLC-MS spectrometry of compound 5 (isopropyl N-((ethylimino)(isopropoxy)methyl)-N-ethylthionocarbamate)**

Supplementary S2

NMR SPECTRA OF SYNTHESIZED COMPOUNDS 1 AND 5



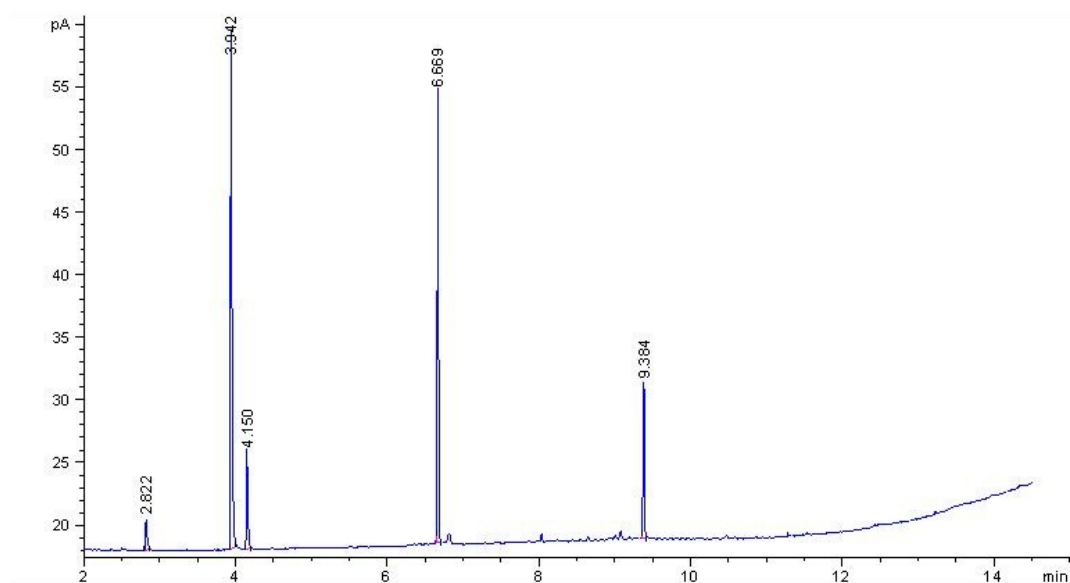
The <sup>1</sup>H NMR spectrometry of compound 1 (O-Isopropyl N-ethylcarbamate)



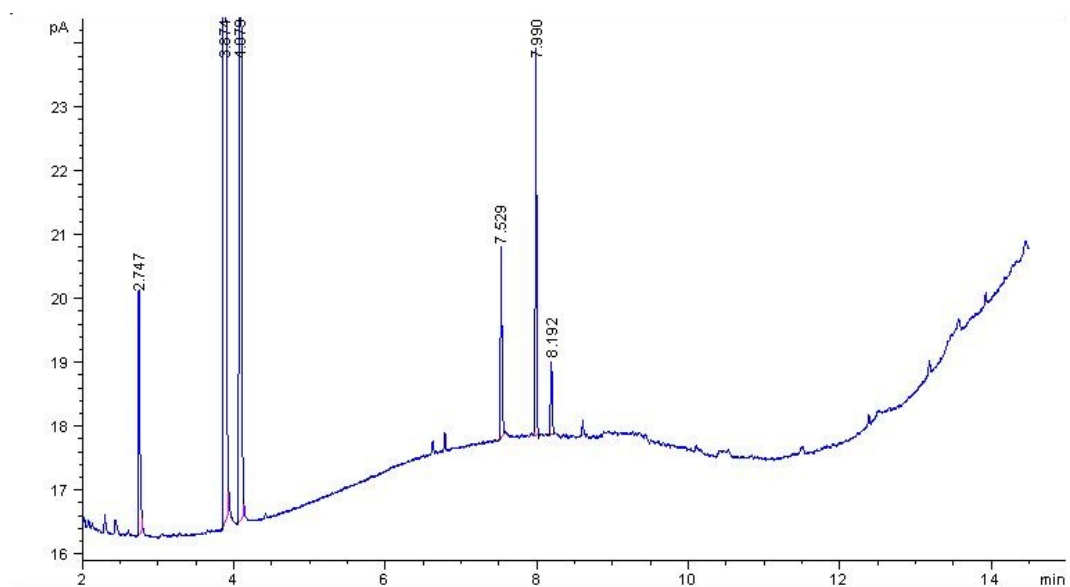
The <sup>1</sup>H NMR spectrometry of compound 5 (isopropyl N-((ethylimino)(isopropoxy)methyl)-N-ethylthionocarbamate)

### Supplementary S3

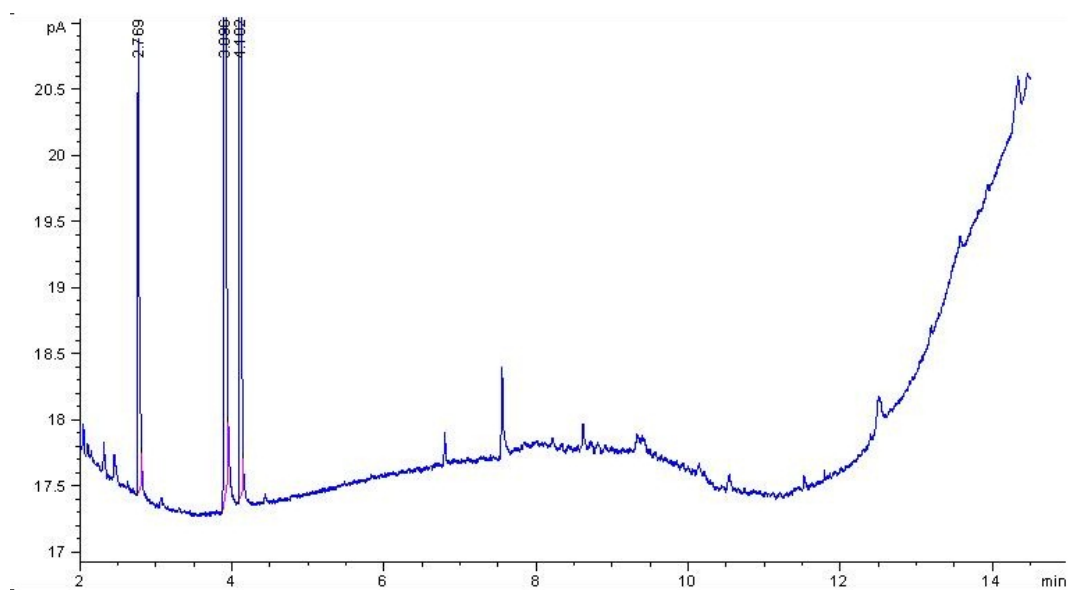
### CHROMATOGRAMS OF DEGRADATION EXPERIMENTS



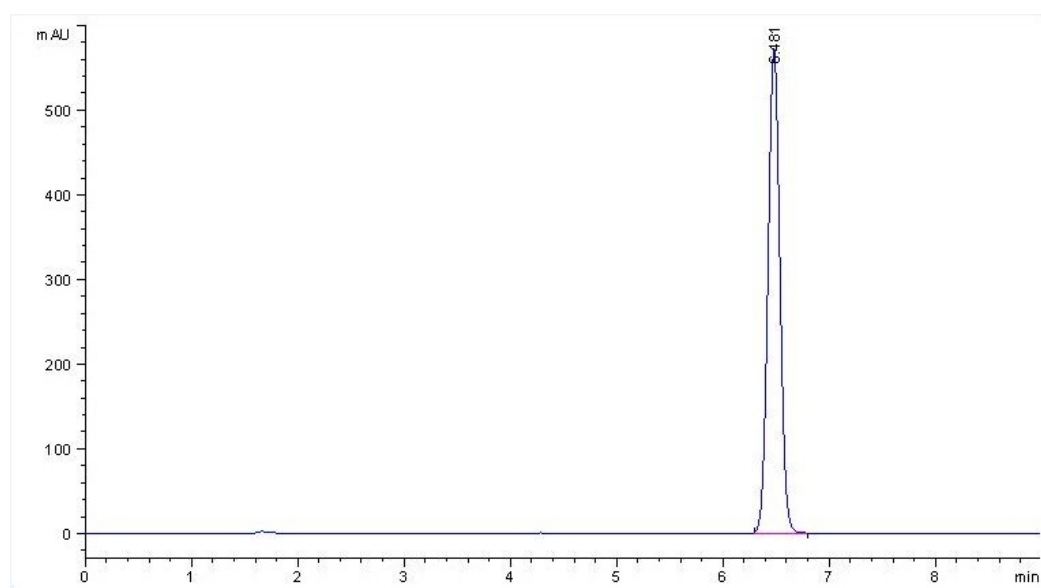
**GC chromatogram after reaction with sodium hypochlorite (1 time higher than IPETC molar concentration) for 2 hours**



**GC chromatogram after reaction with sodium hypochlorite (5 times higher than IPETC molar concentration) for 2 hours**

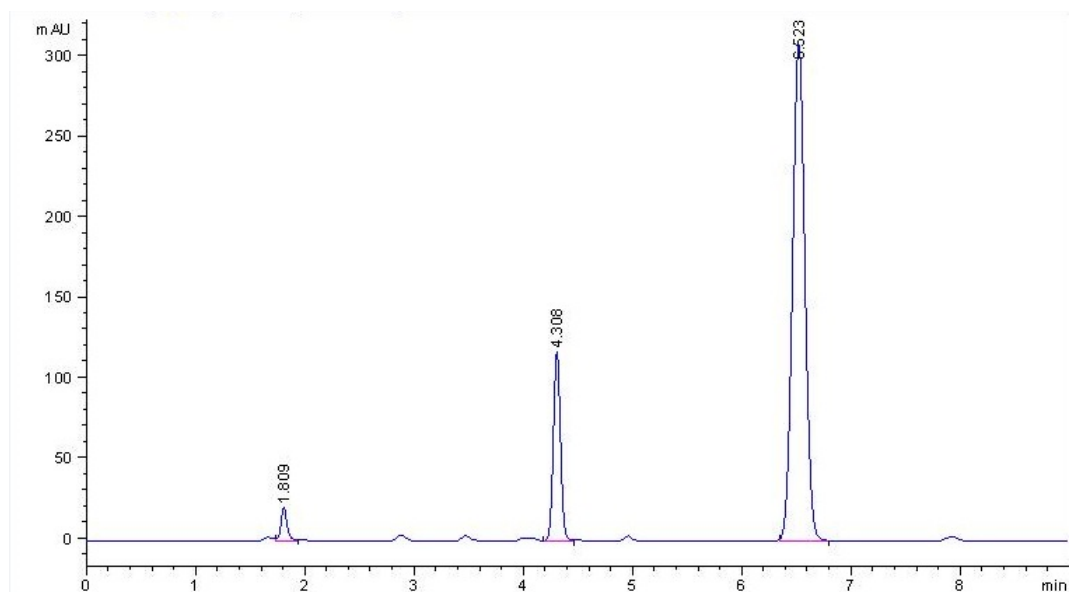


**GC chromatogram after reaction with sodium hypochlorite (10 times higher than IPETC molar concentration) for 2 hours**

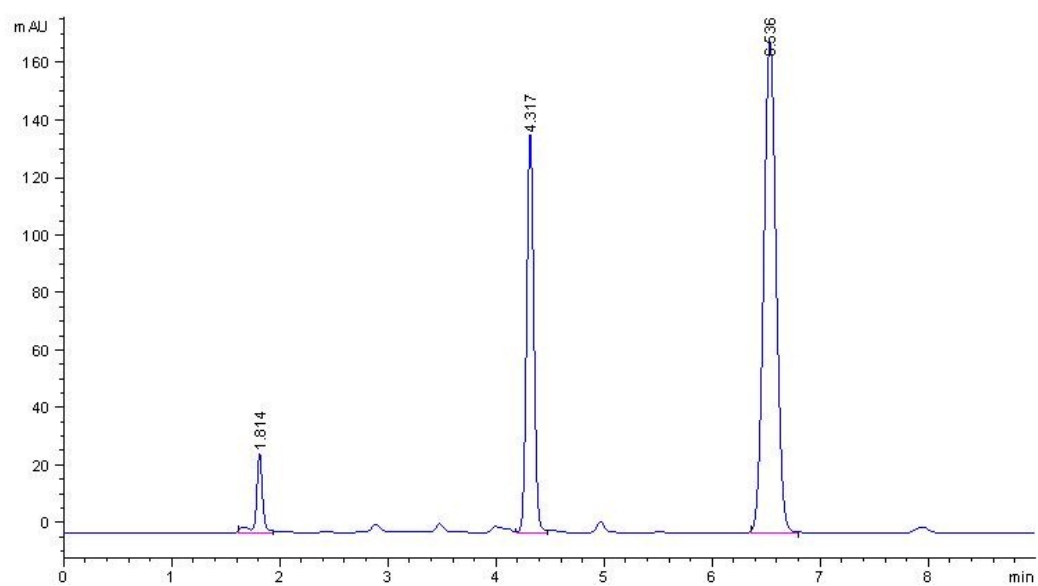


**IPETC solution added with iron salt before irradiation (continuous oxygenation)**

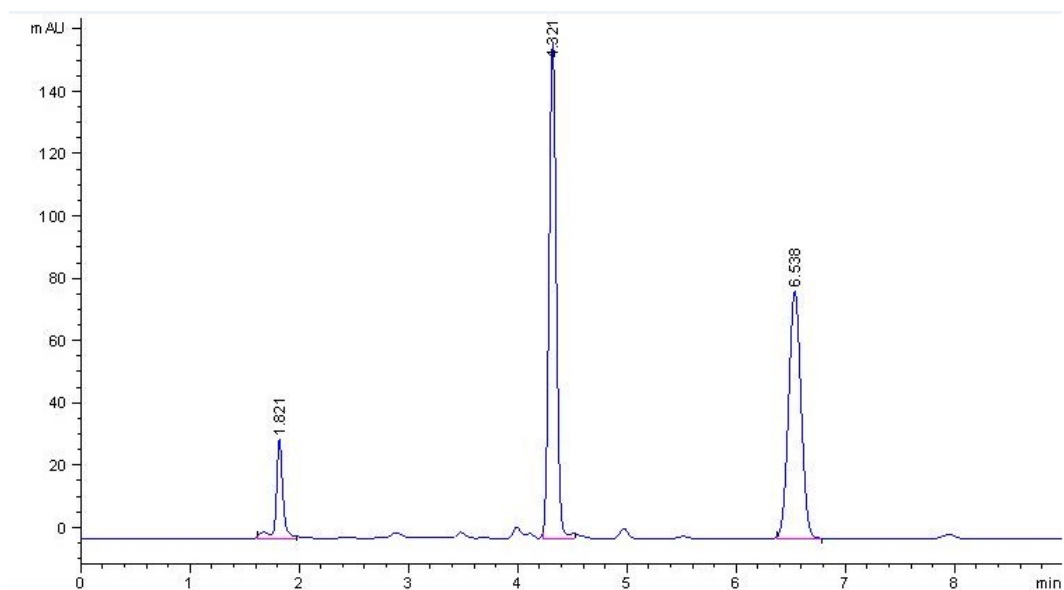




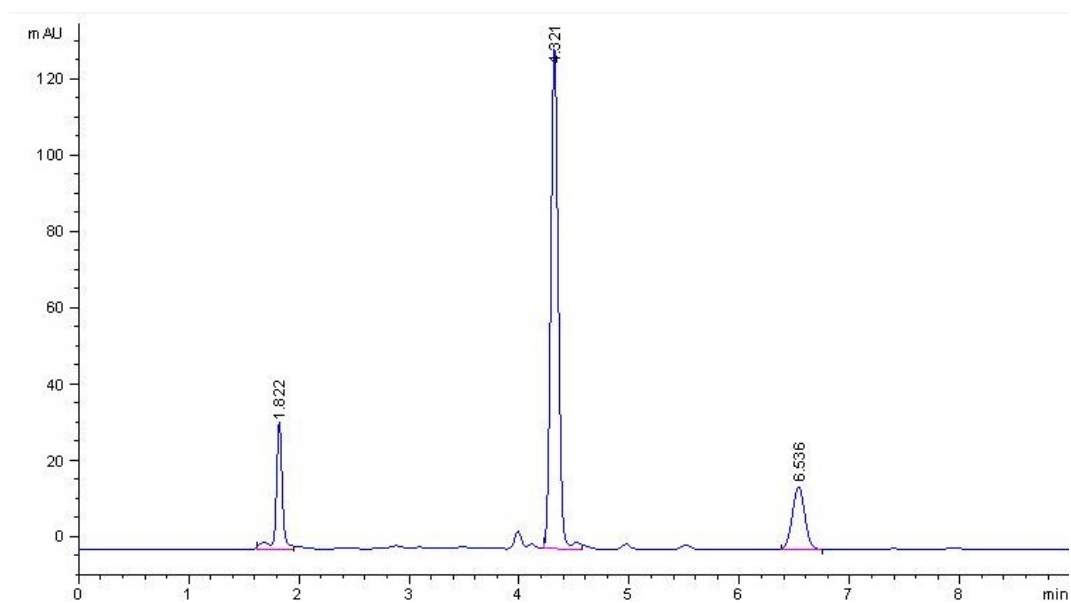
**IPETC solution added with iron salt after 2 hours irradiation (continuous oxygenation)**



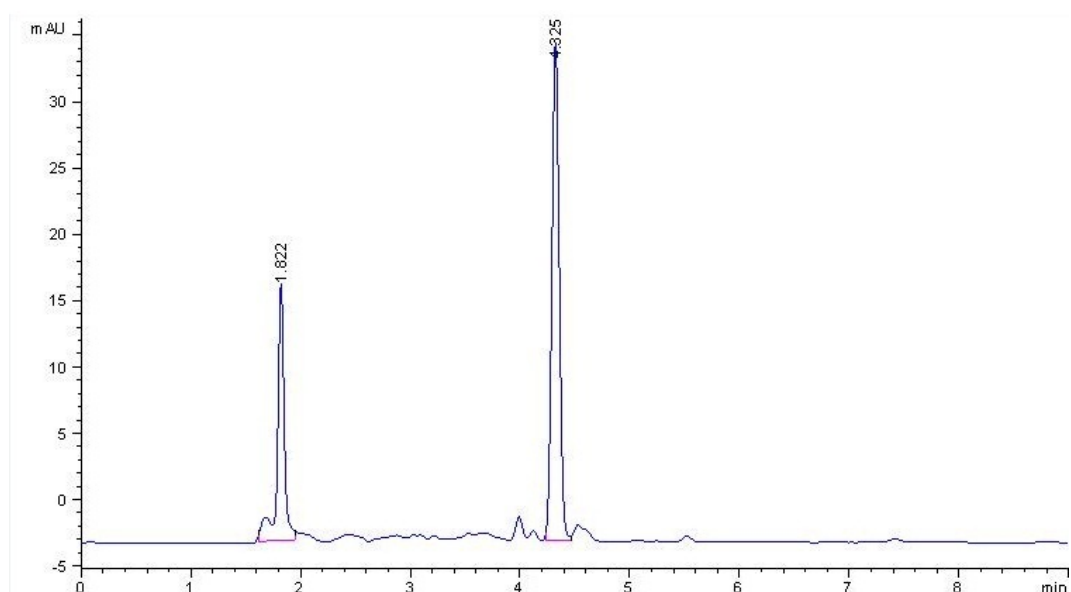
**IPETC solution added with iron salt after 4 hours irradiation (continuous oxygenation)**



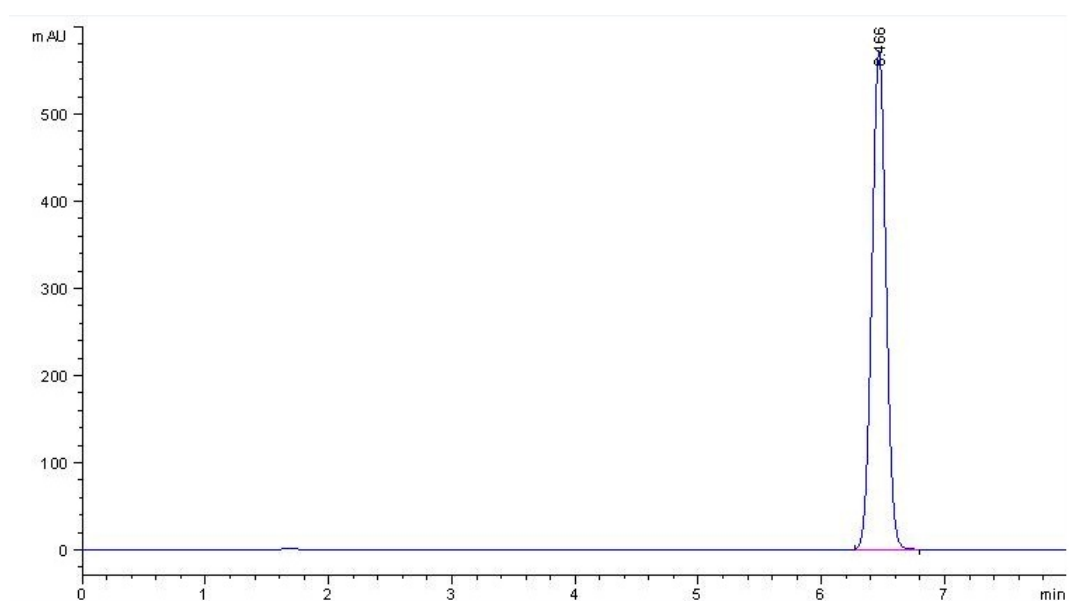
**IPETC solution added with iron salt after 6 hours irradiation (continuous oxygenation)**



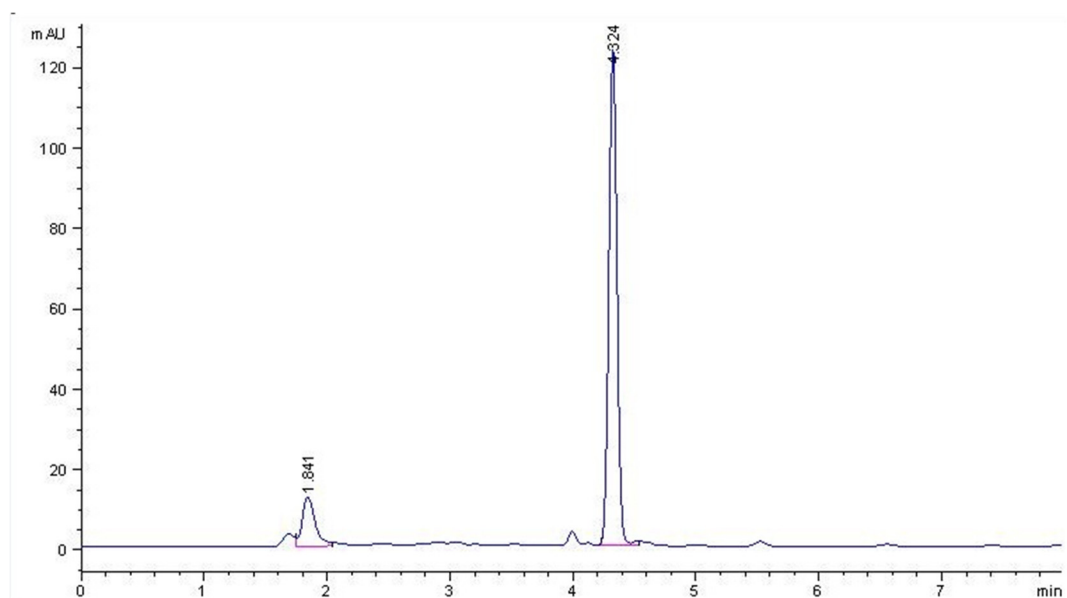
**IPETC solution added with iron salt after 8 hours irradiation (continuous oxygenation)**



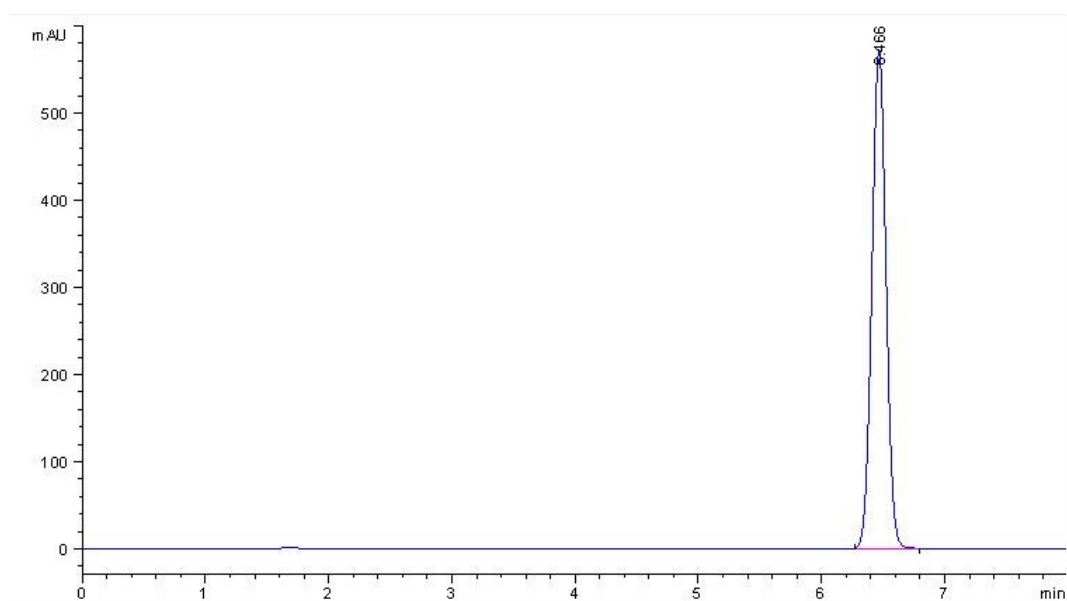
**IPETC solution added with iron salt after 10 hours irradiation (continuous oxygenation)**



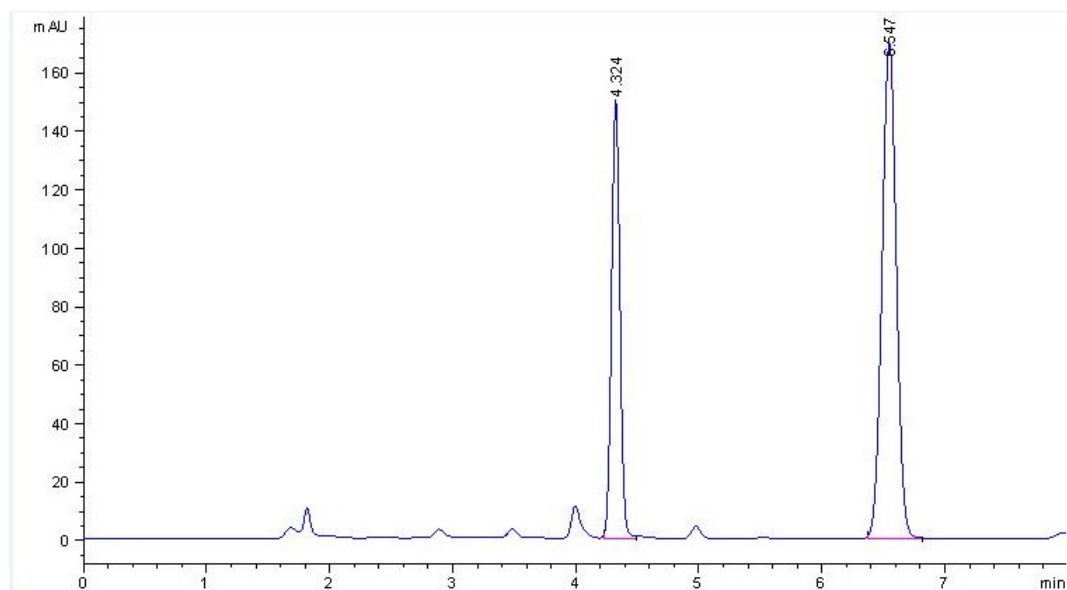
**IPETC solution added with iron salt before irradiation (continuous air)**



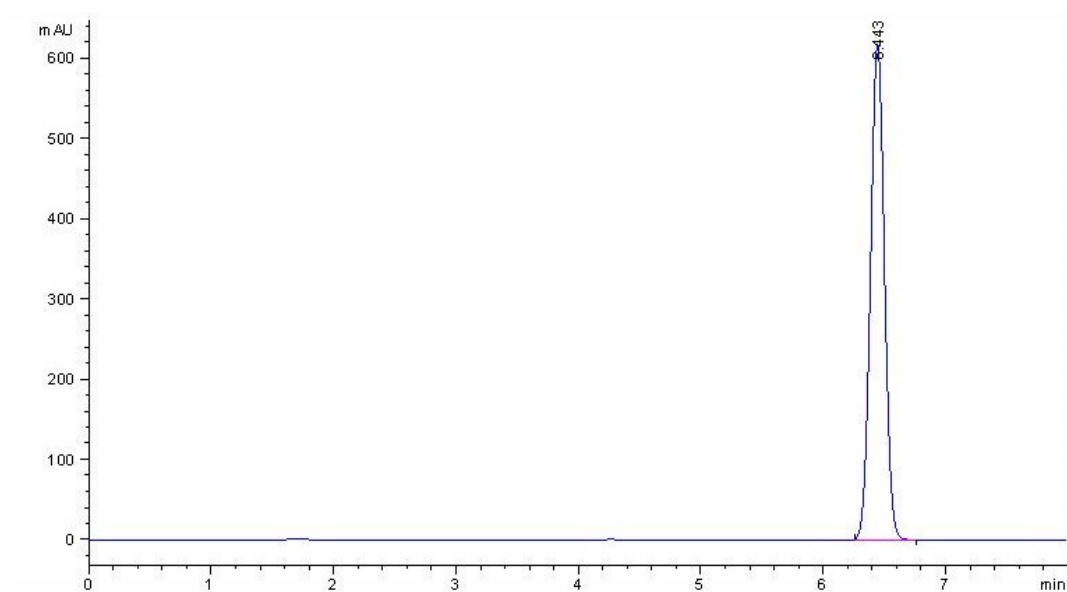
**IPETC solution added with iron salt after 10 hours irradiation (continuous air)**



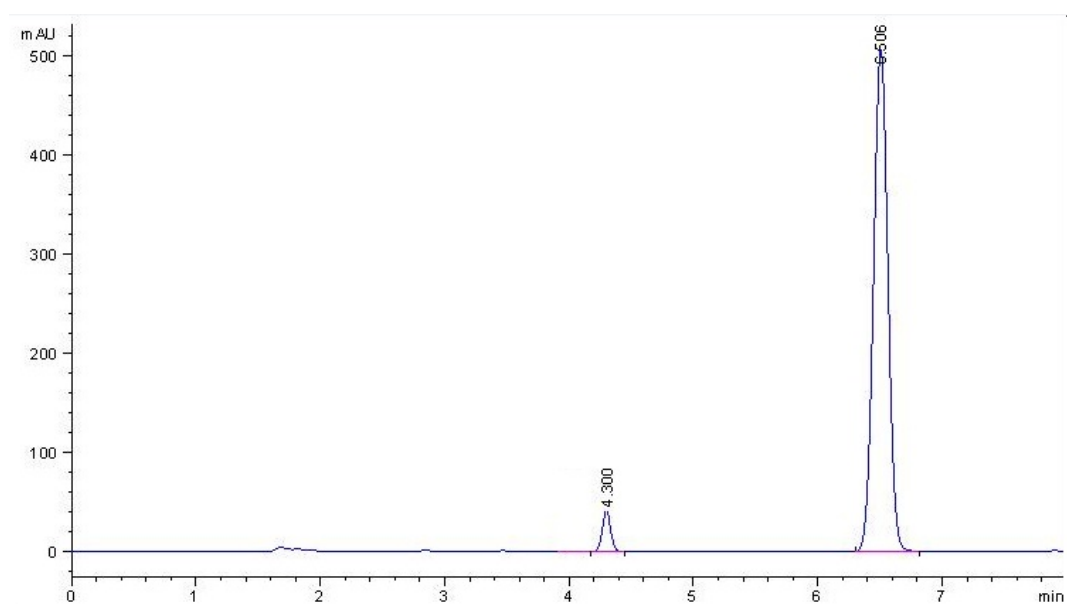
**IPETC solution added with iron salt before irradiation (air, not continuous)**



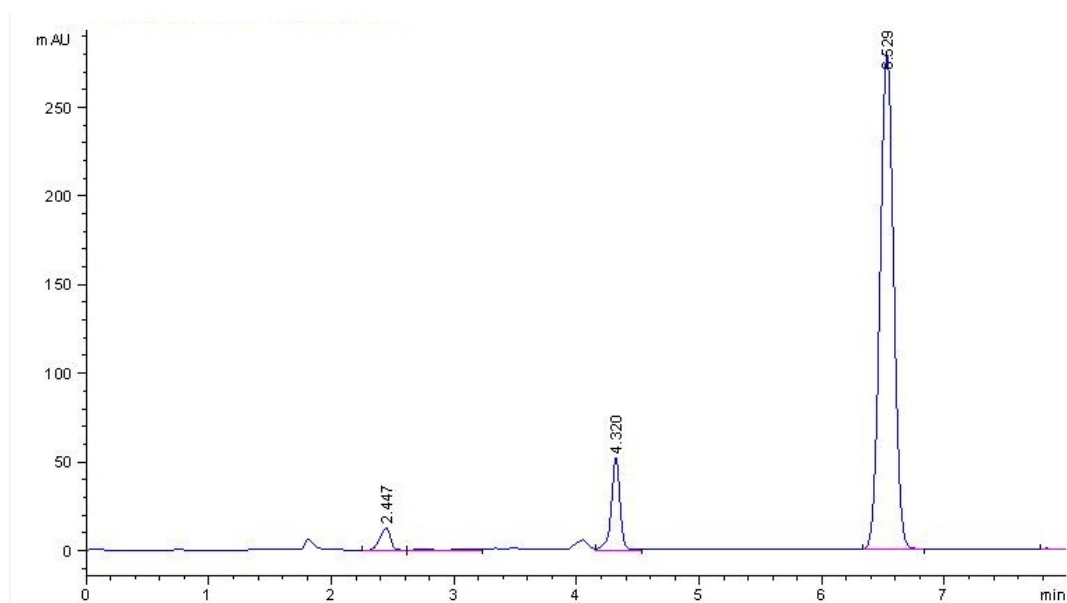
**IPETC solution added with iron salt after 10 hours irradiation (air, not continuous)**



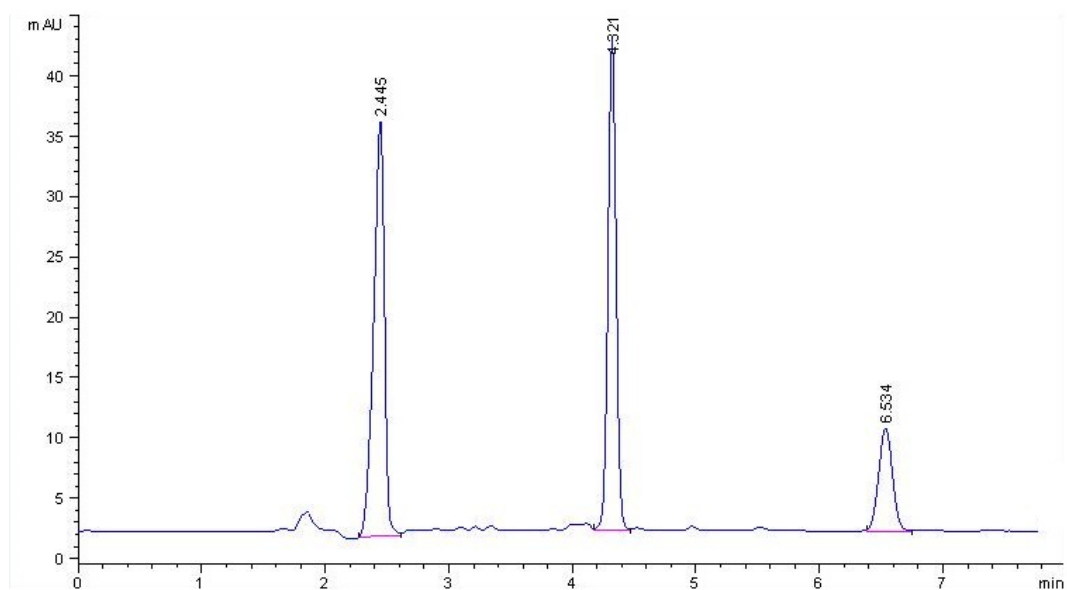
**IPETC solution added with iron salt before irradiation (saturated with argon)**



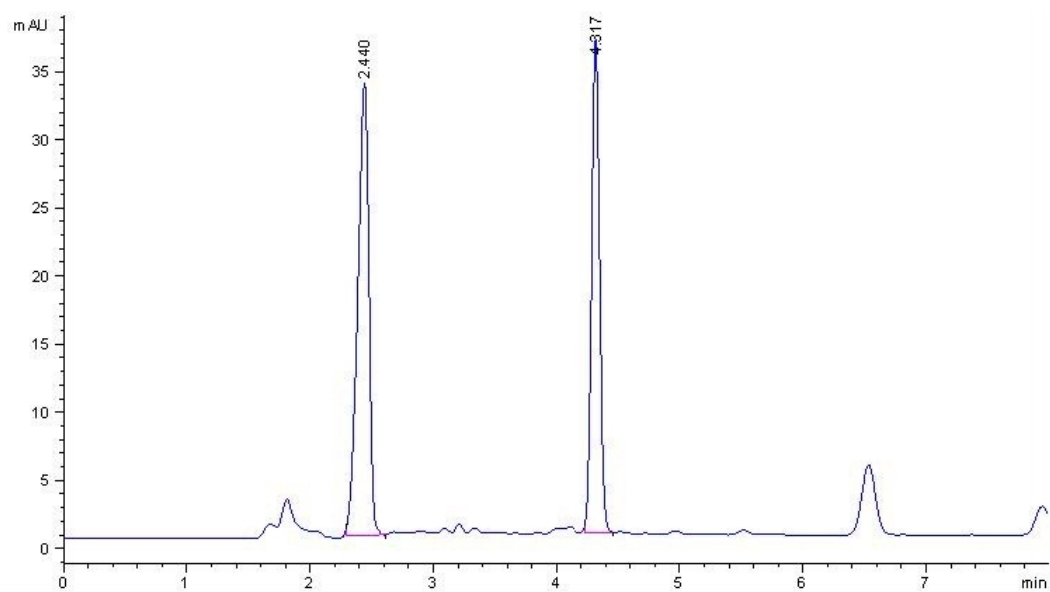
**IPETC solution added with iron salt after 10 hours irradiation (saturated with argon)**



**IPETC solution after 10 hours reaction with 40 mg/L  $\text{Fe}^{2+}$ 、200mg/L  $\text{H}_2\text{O}_2$**



**IPETC solution after 10 hours reaction with 40 mg/L  $\text{Fe}^{2+}$ 、500mg/L  $\text{H}_2\text{O}_2$**



**IPETC solution after 10 hours reaction with 100 mg/L  $\text{Fe}^{2+}$ 、500mg/L  $\text{H}_2\text{O}_2$**