

**Supporting Information  
for**

**Formation of exceptionally stable ketene during photo transformations of  
Bicyclo[2.2.2]oct-5-en-2-ones having mixed chromophores**

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India- 712101

**Copies of NMR, IR, Mass & UV spectra**

## 2-1. NMR, IR, Mass and UV Spectrum:

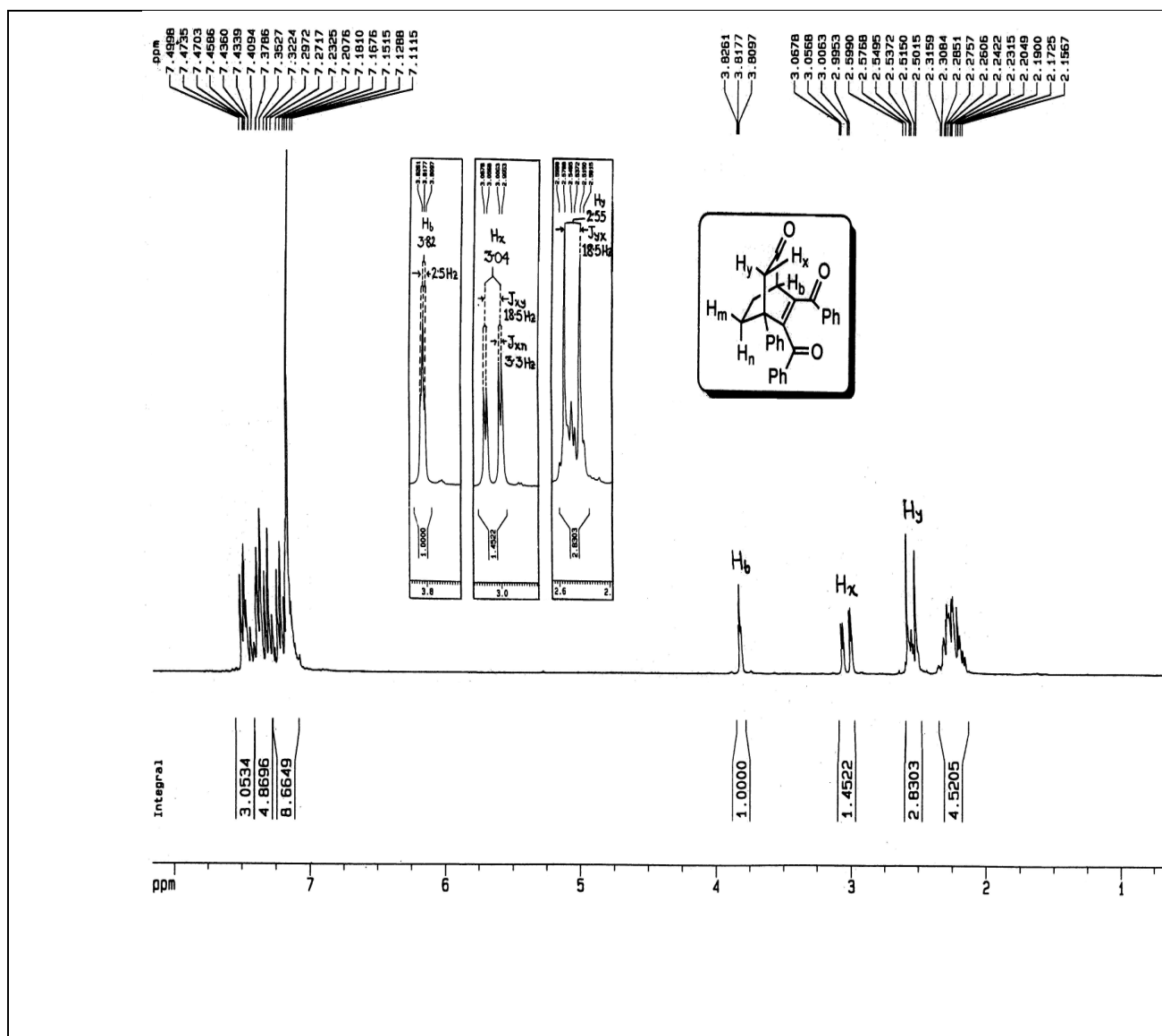


Fig.1: <sup>1</sup>H-NMR spectrum of 7a

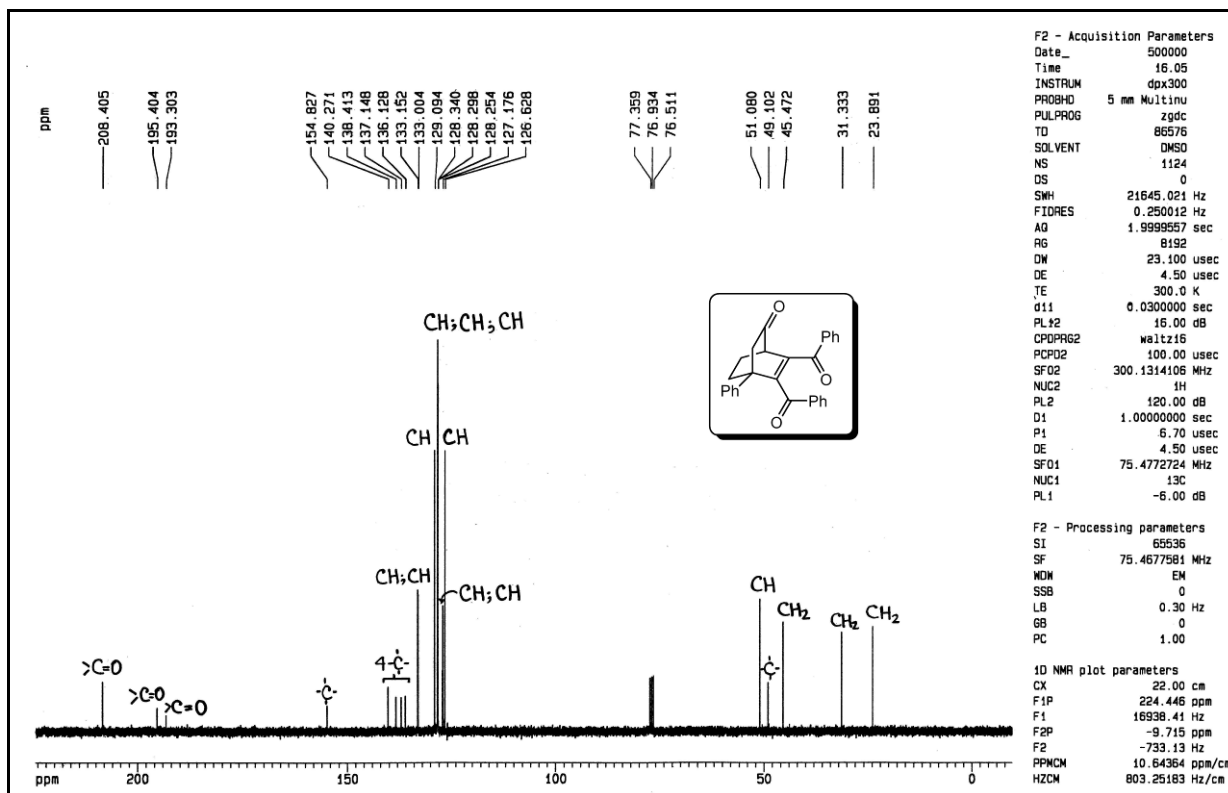


Fig.2: <sup>13</sup>C-NMR spectrum of 7a

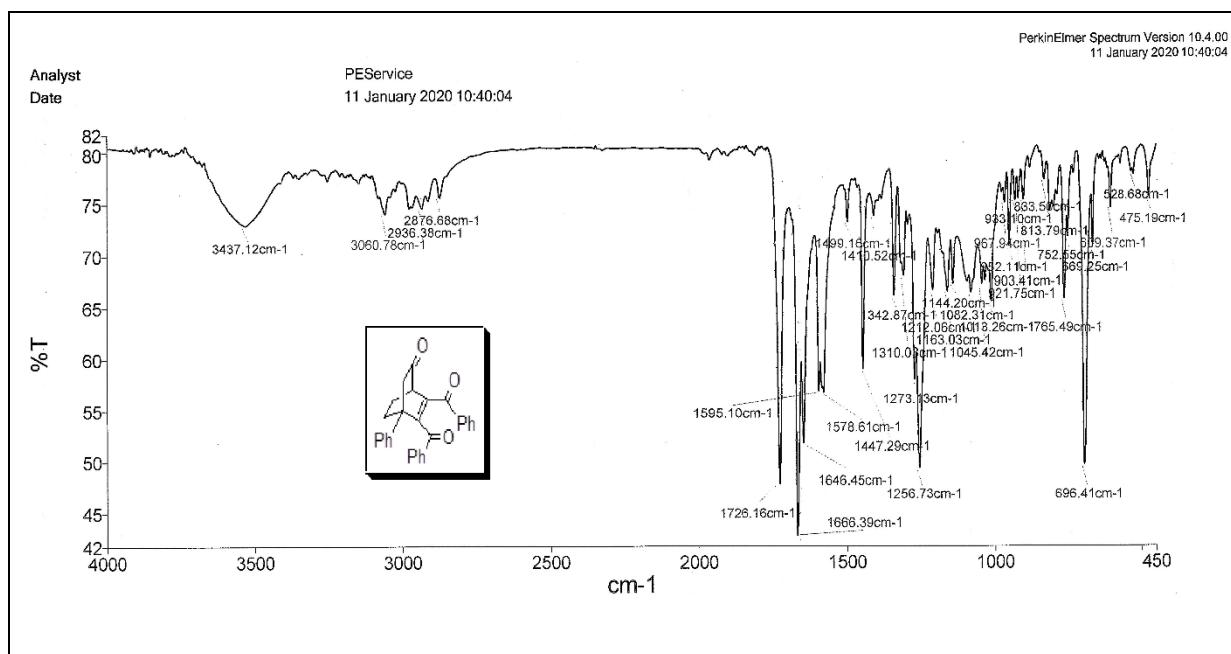
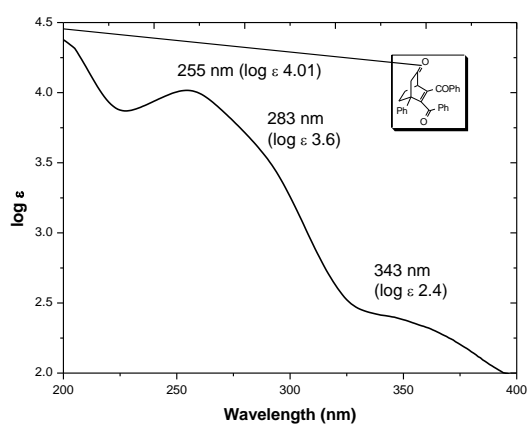
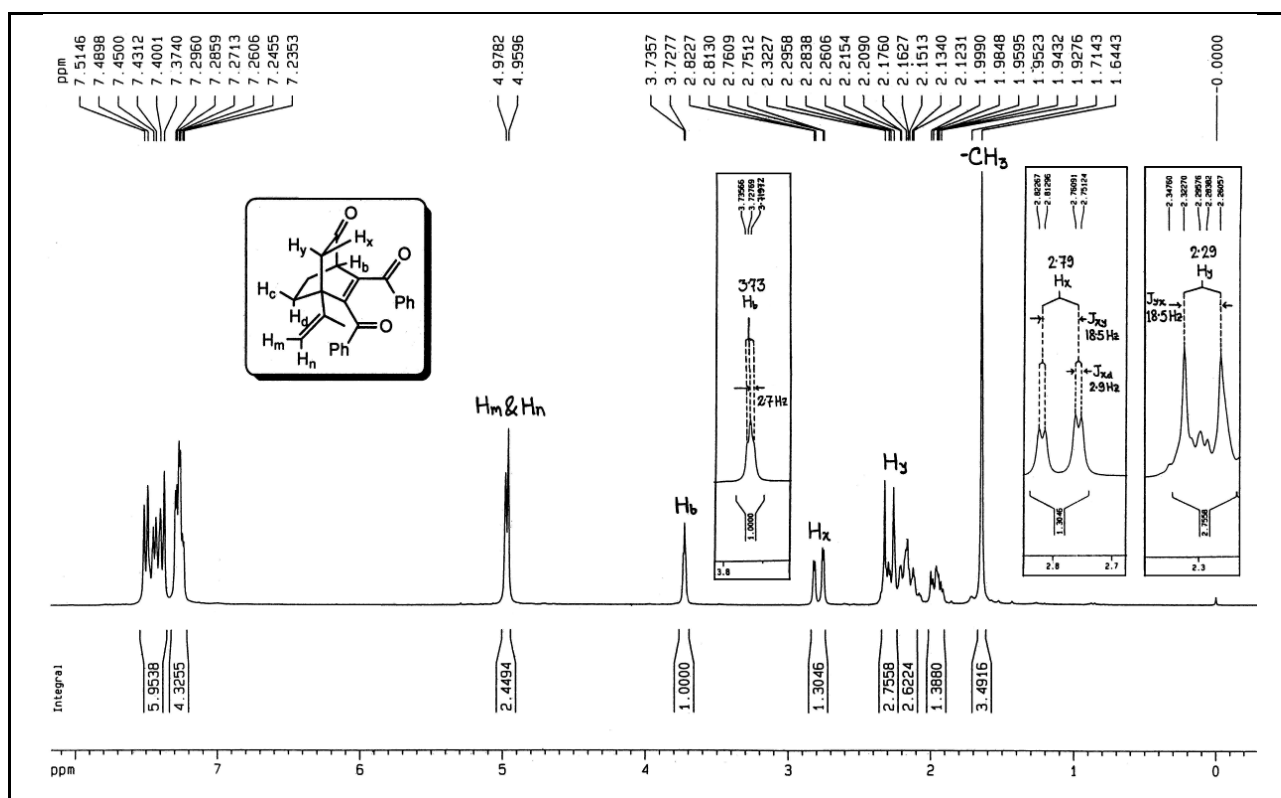


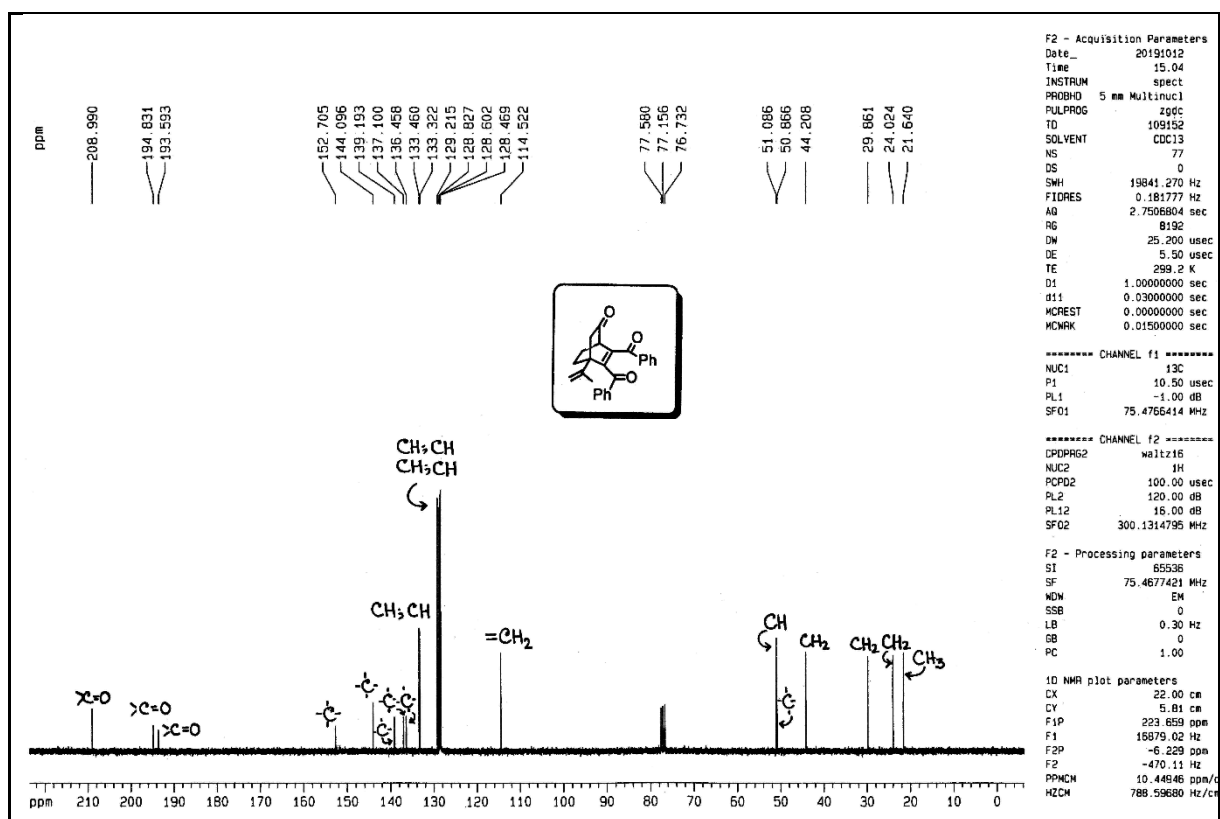
Fig.3: IR spectrum of 7a



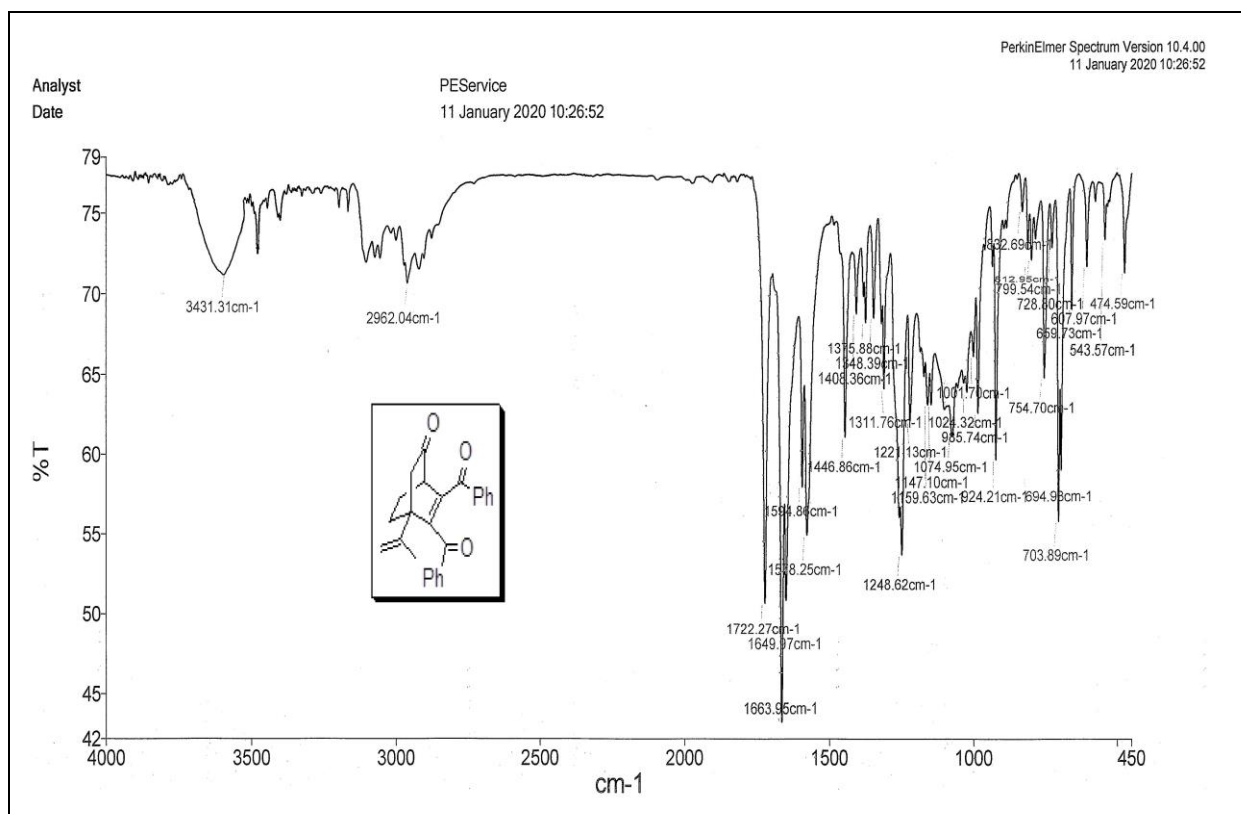
**Fig.4:** UV absorption spectrum of **7a** in acetonitrile



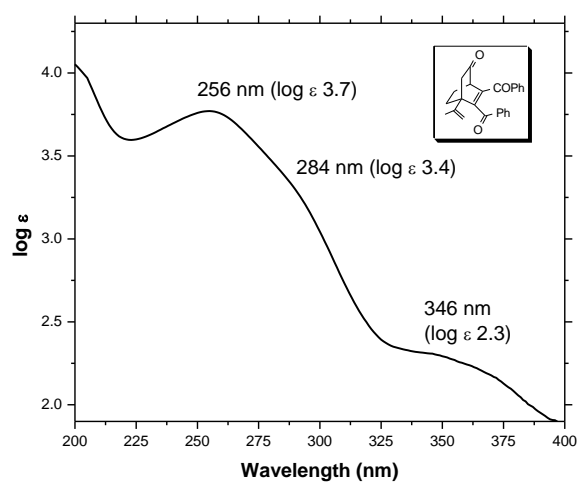
**Fig.5:**  $^1\text{H}$ -NMR spectrum of **7b**



**Fig.6: <sup>13</sup>C-NMR spectrum of 7b**



**Fig.7: IR spectrum of 7b**



**Fig.8:** UV absorption spectrum of **7b** in acetonitrile

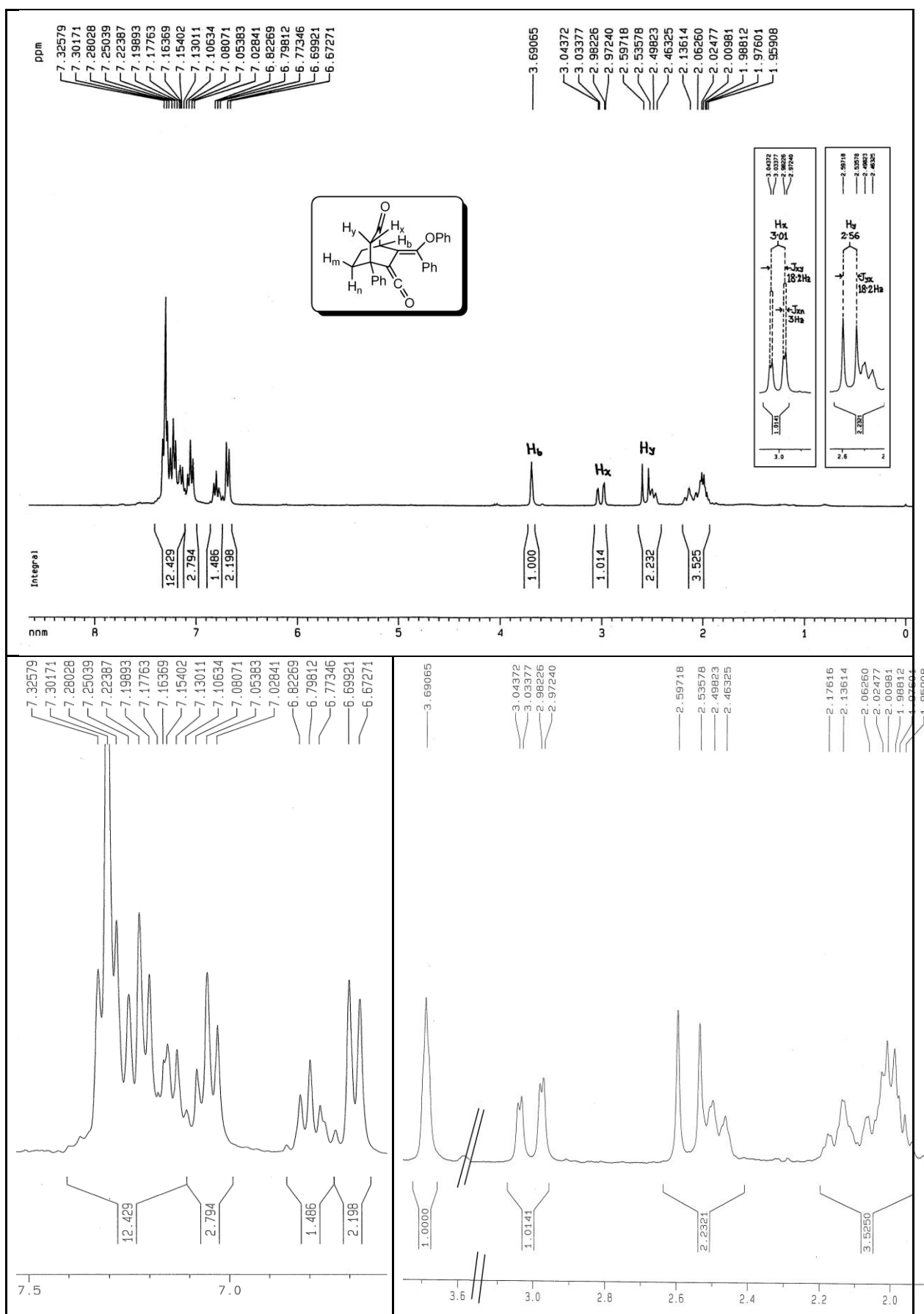


Fig.9: <sup>1</sup>H-NMR spectrum of 10a

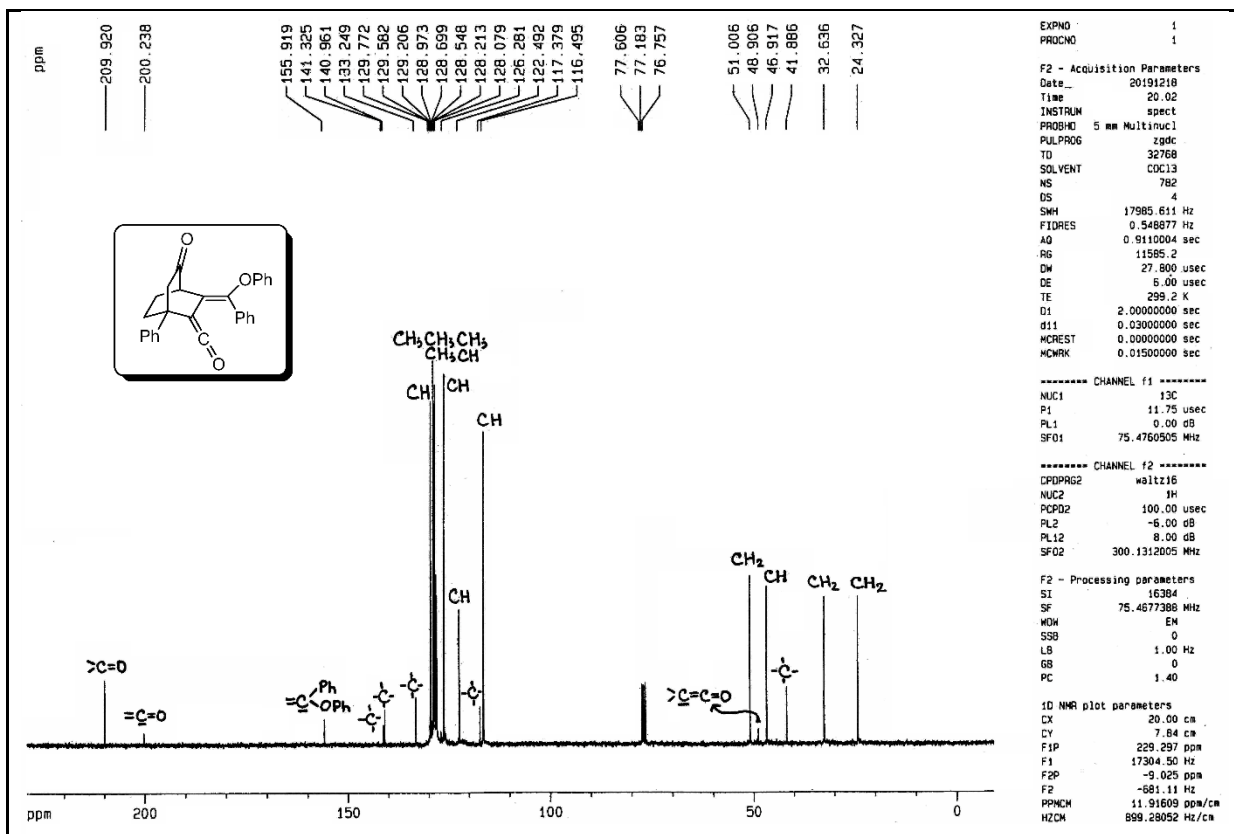


Fig.10: <sup>13</sup>C-NMR spectrum of 10a

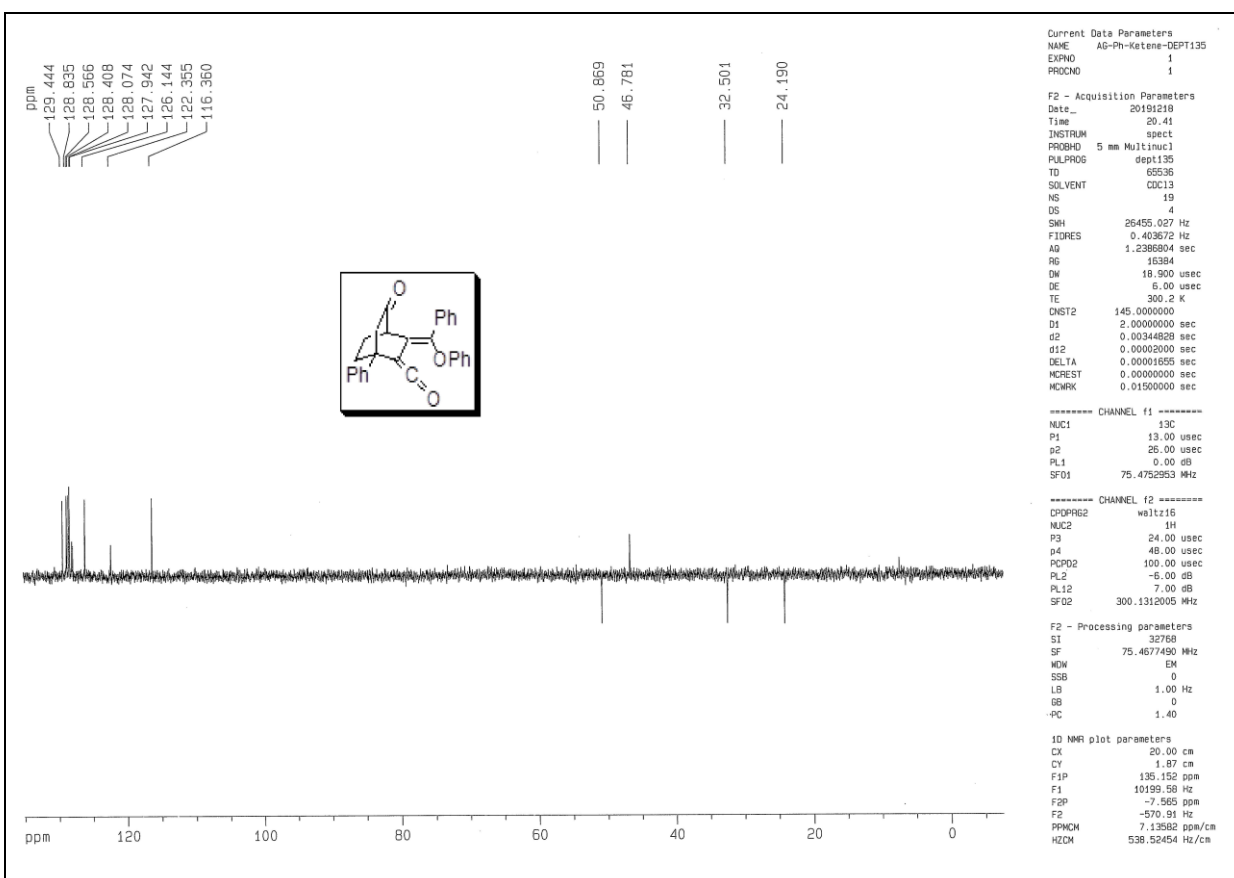


Fig.11: DEPT-135 spectrum of 10a

## I.A.C.S., Organic Chemistry

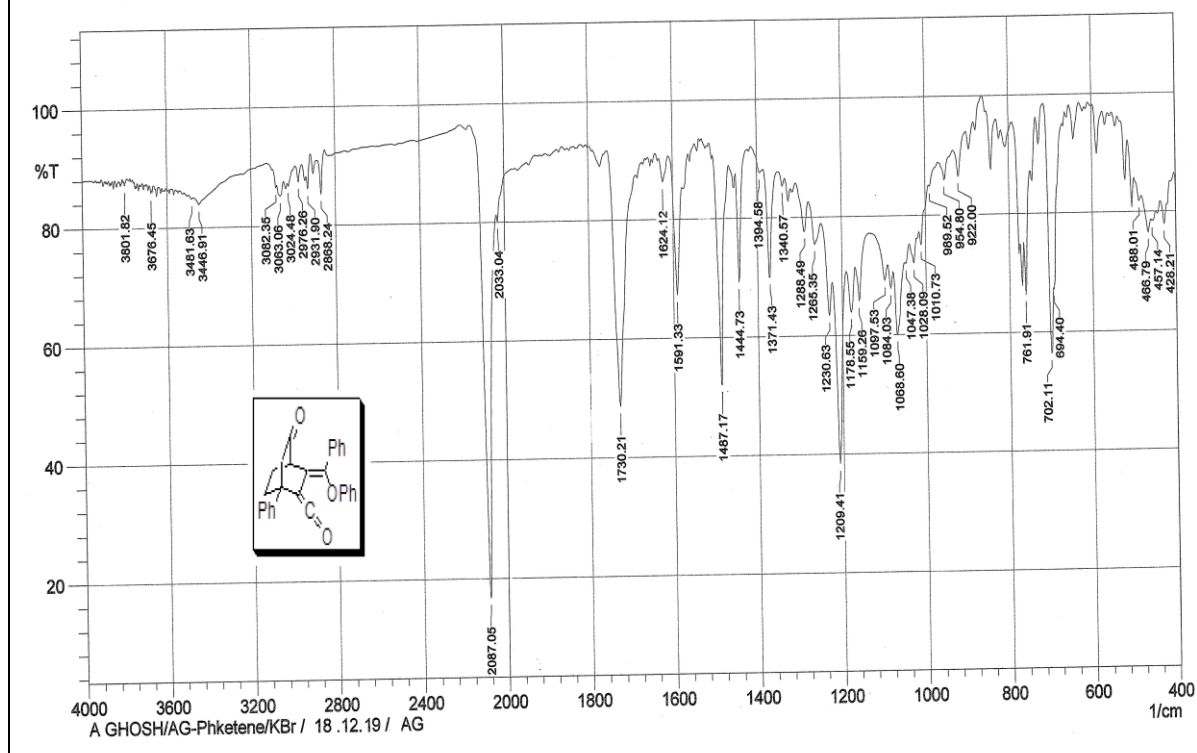


Fig.12: IR spectrum of 10a

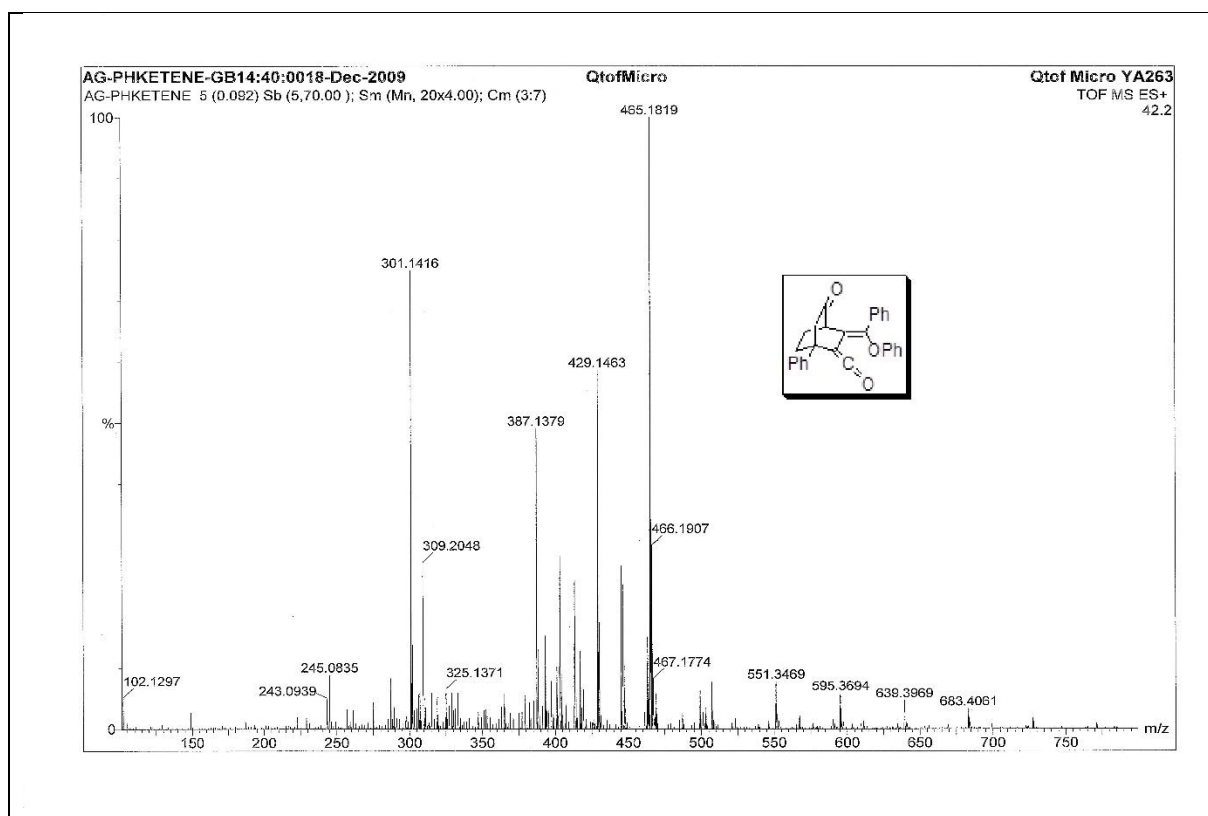
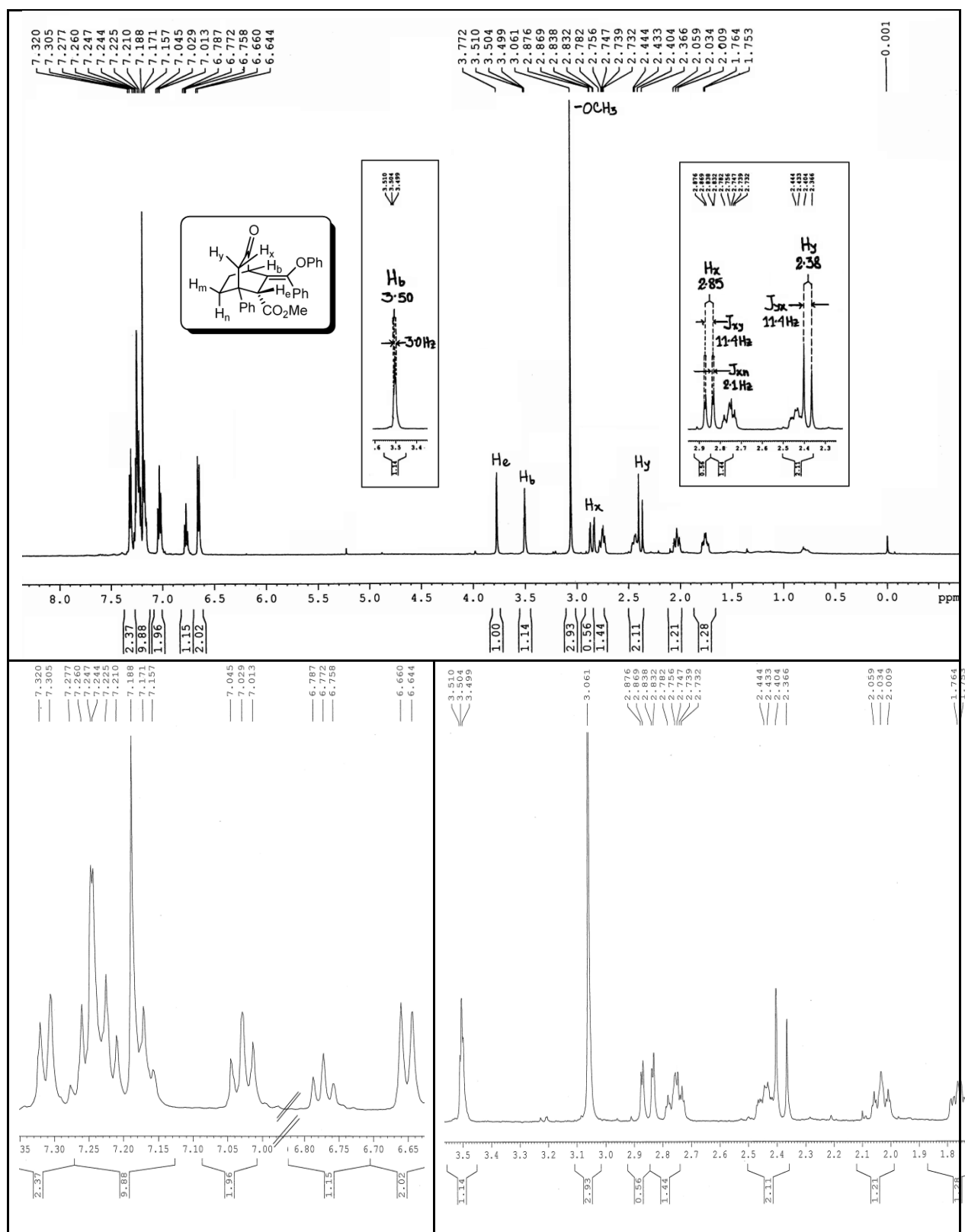


Fig.13: Mass spectrum of 10a



**Fig.14:**  $^1\text{H}$ -NMR spectrum of 11a

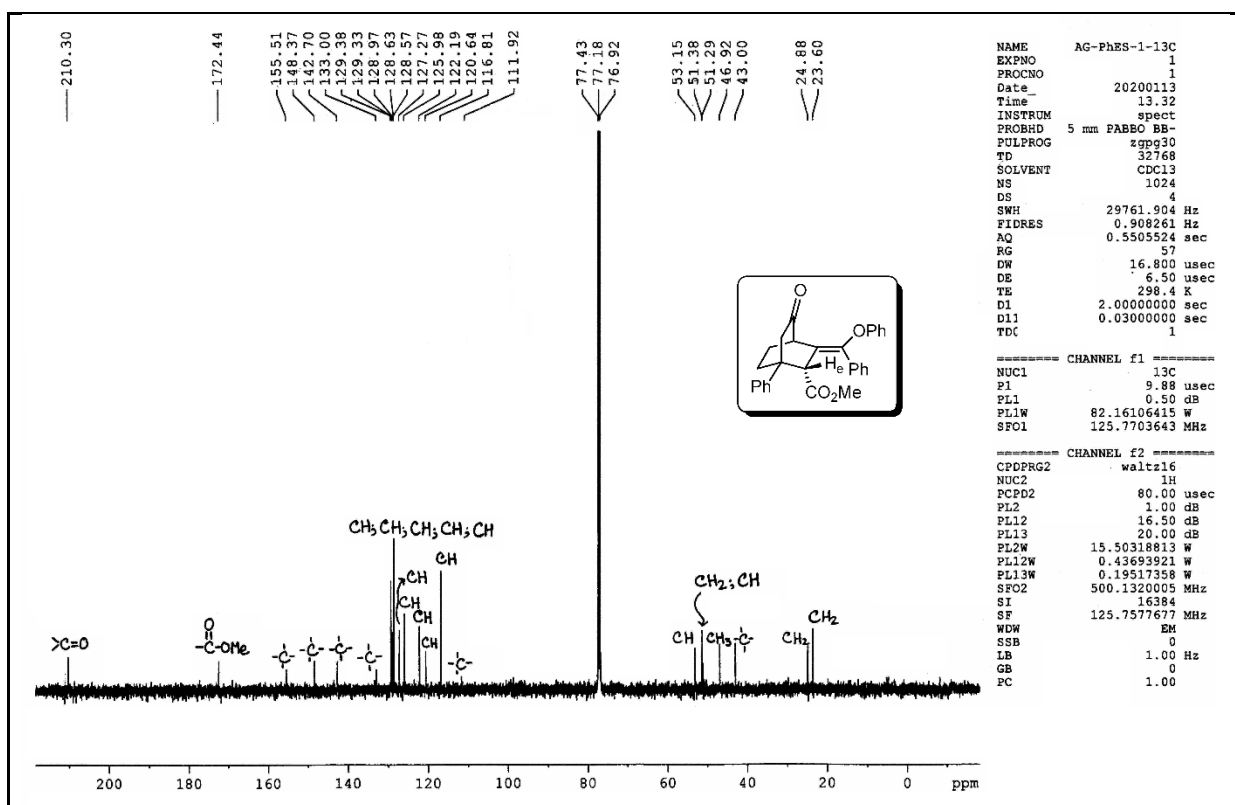


Fig.15: <sup>13</sup>C-NMR spectrum of 11a

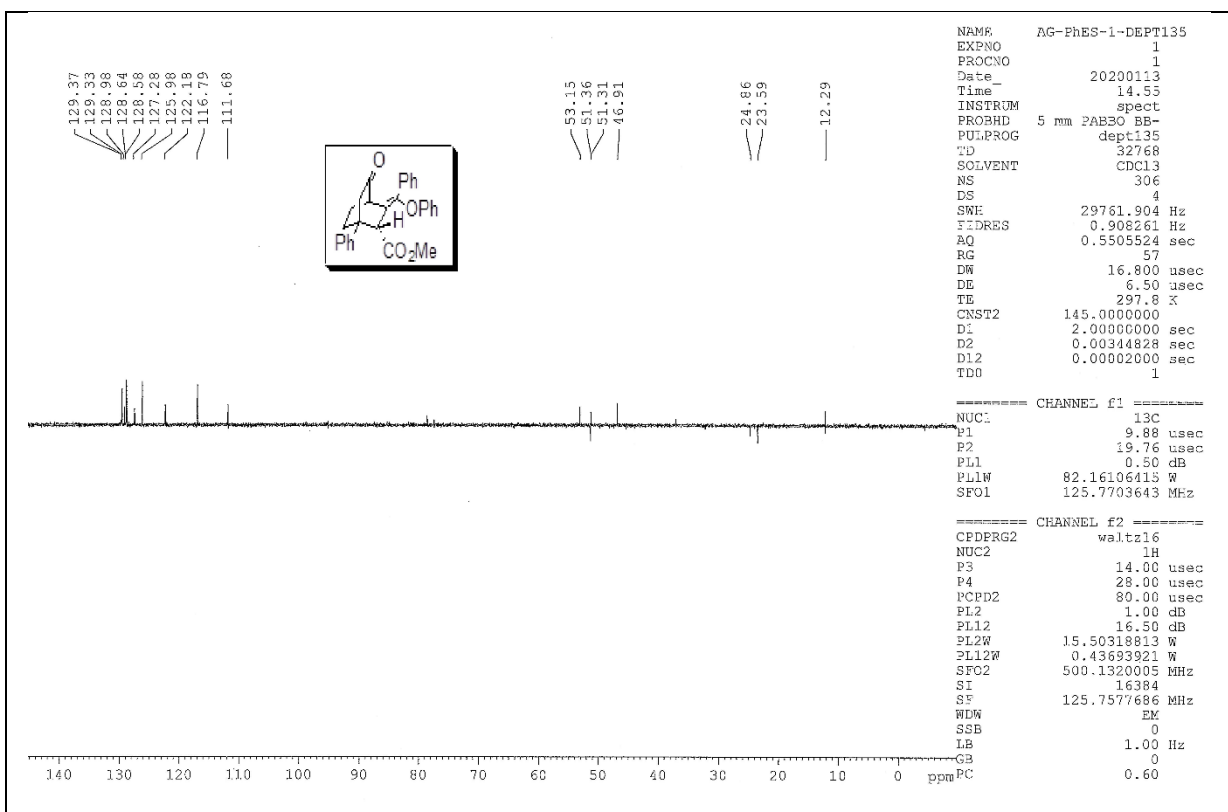


Fig.16: DEPT-135 spectrum of 11a

## I.A.C.S., Organic Chemistry

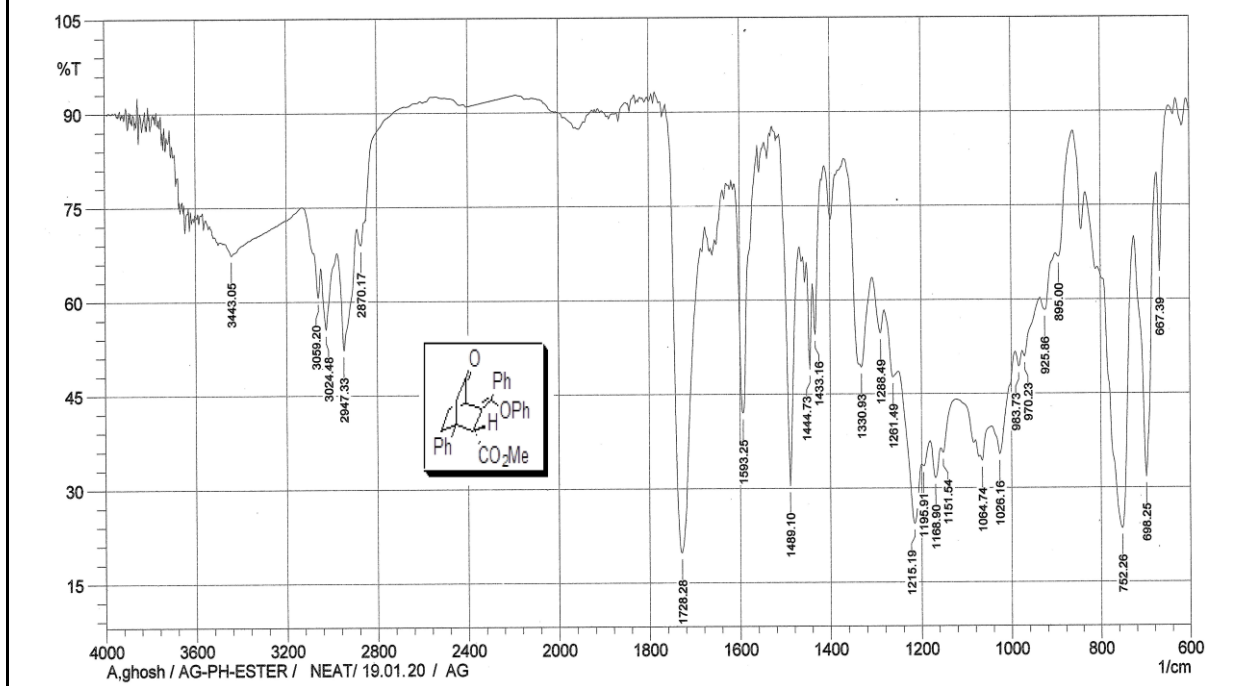
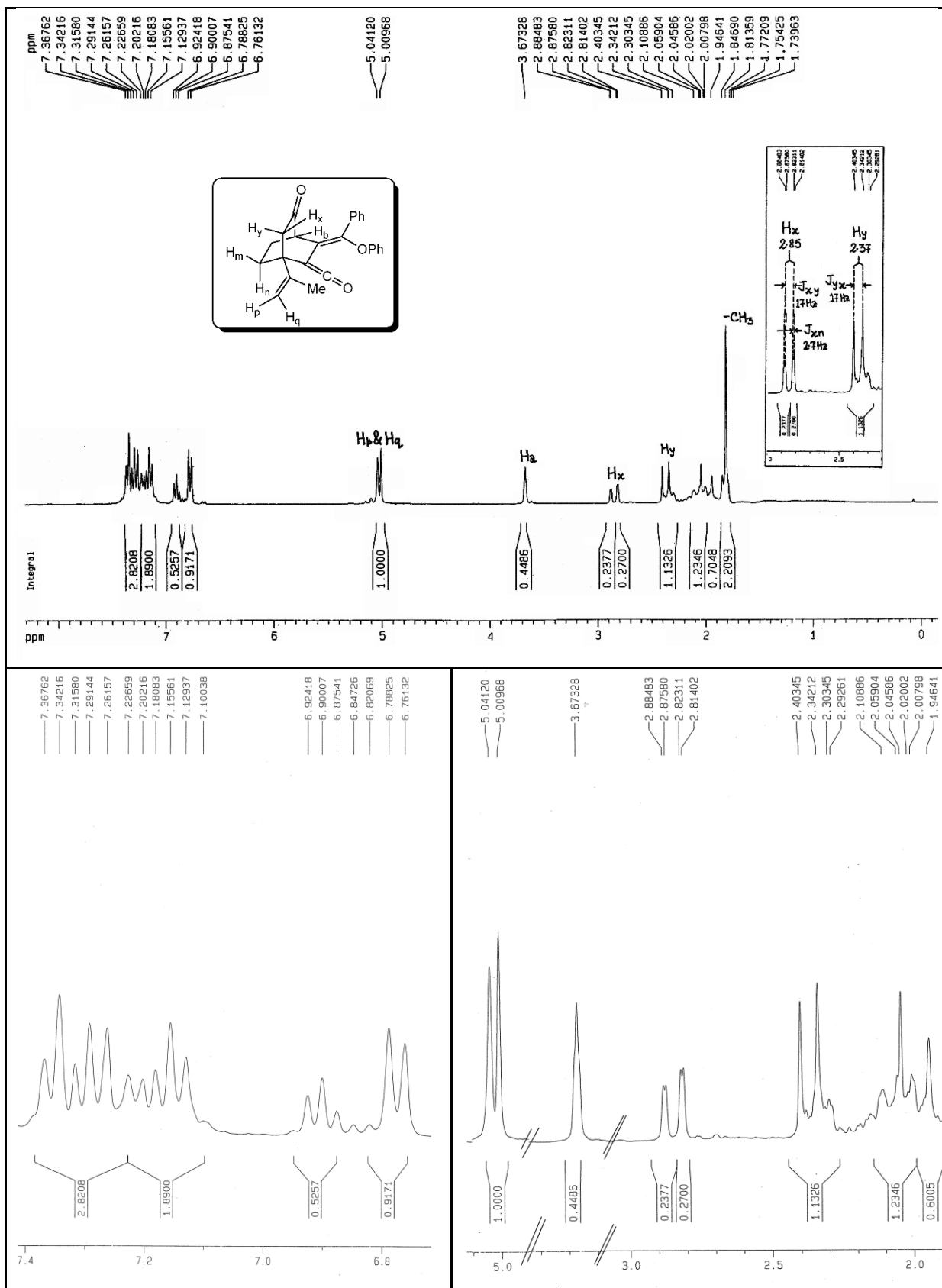


Fig.17: IR spectrum of 11a



**Fig.18:** <sup>1</sup>H-NMR spectrum of **10b**

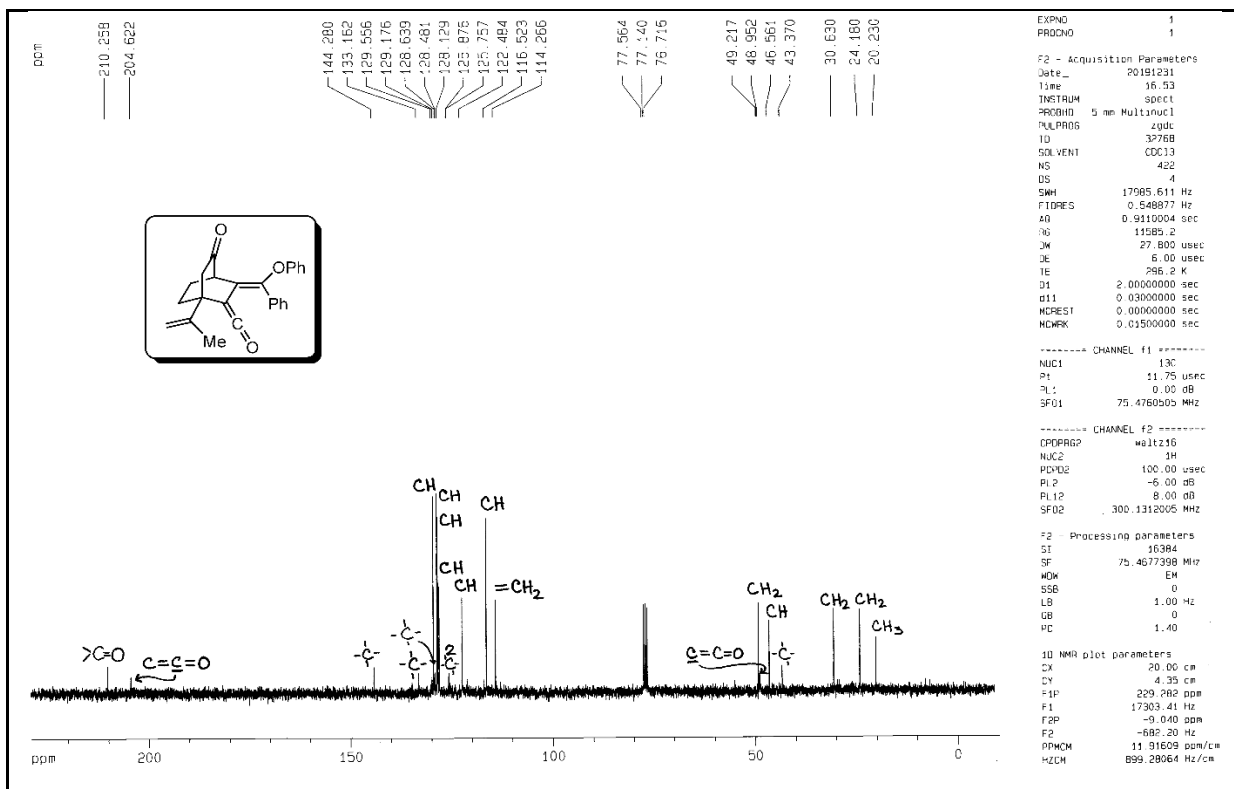


Fig.19: <sup>13</sup>C-NMR spectrum of 10b

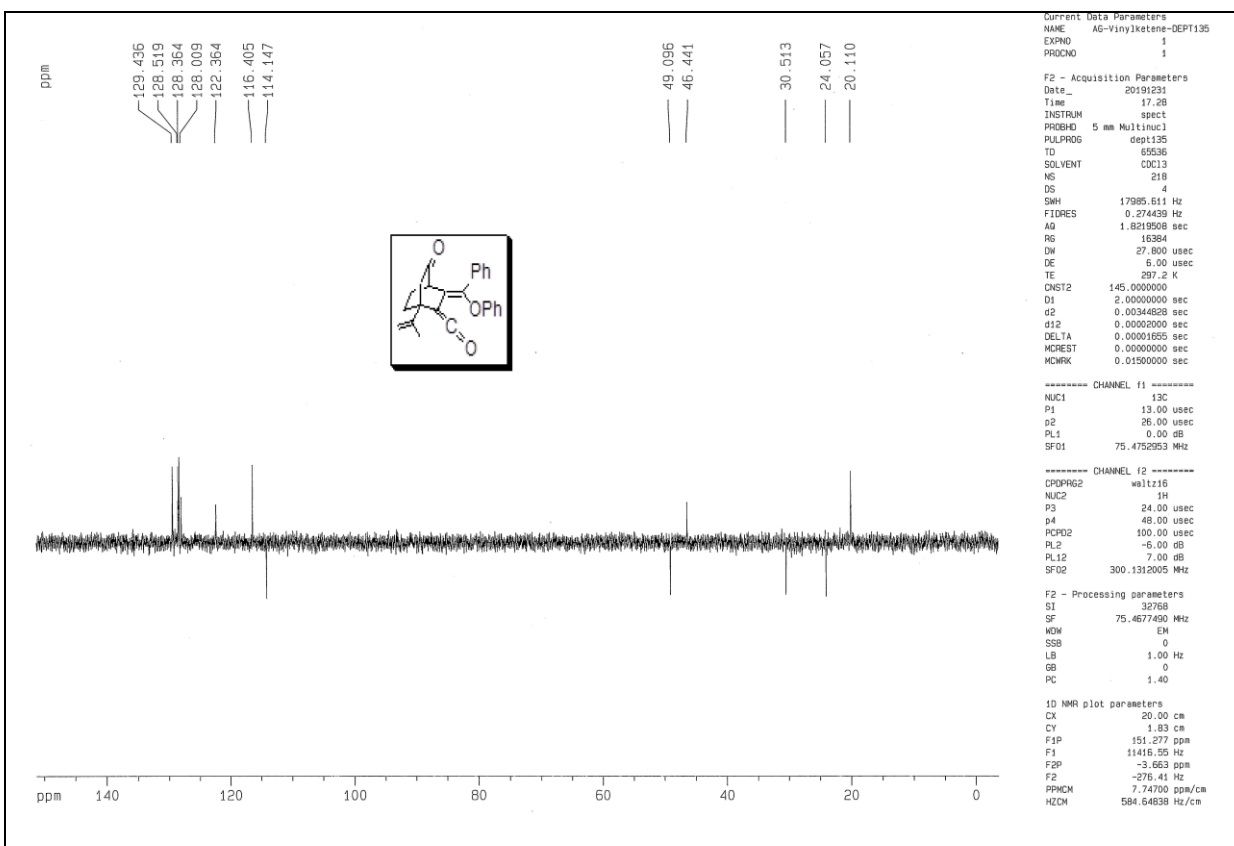
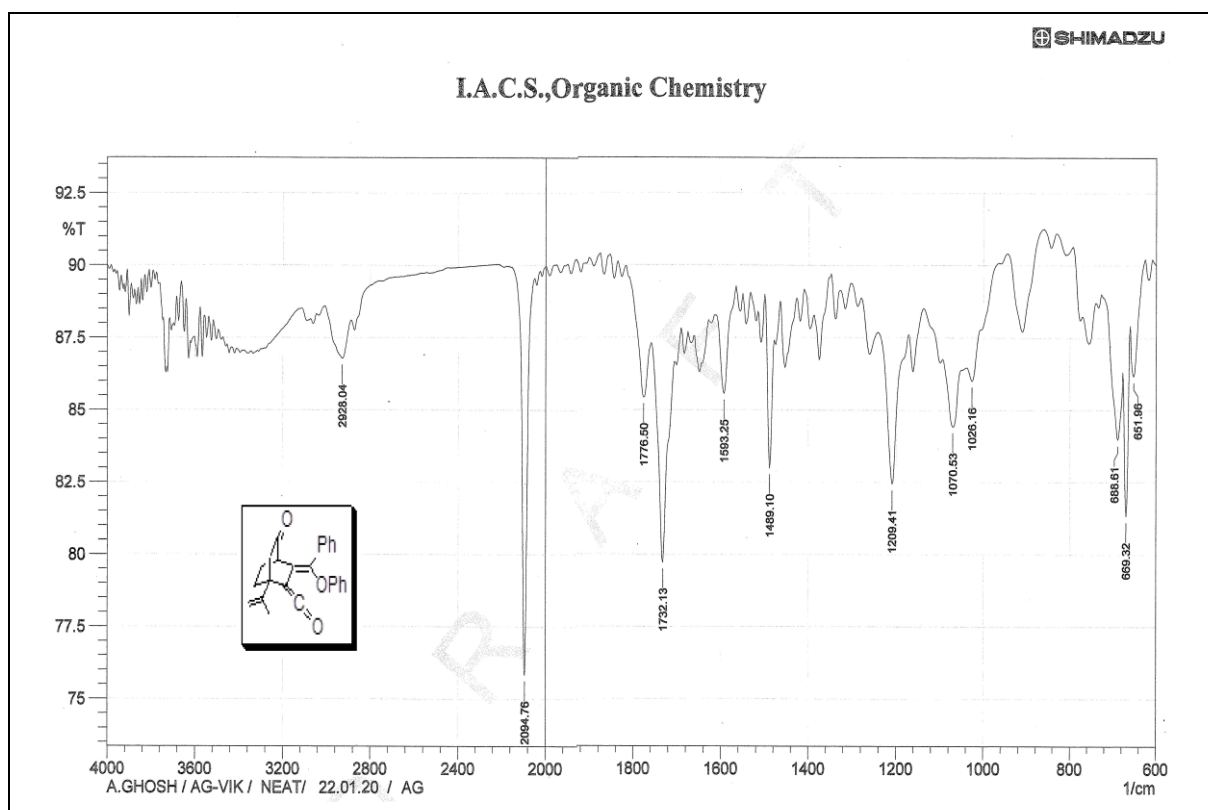
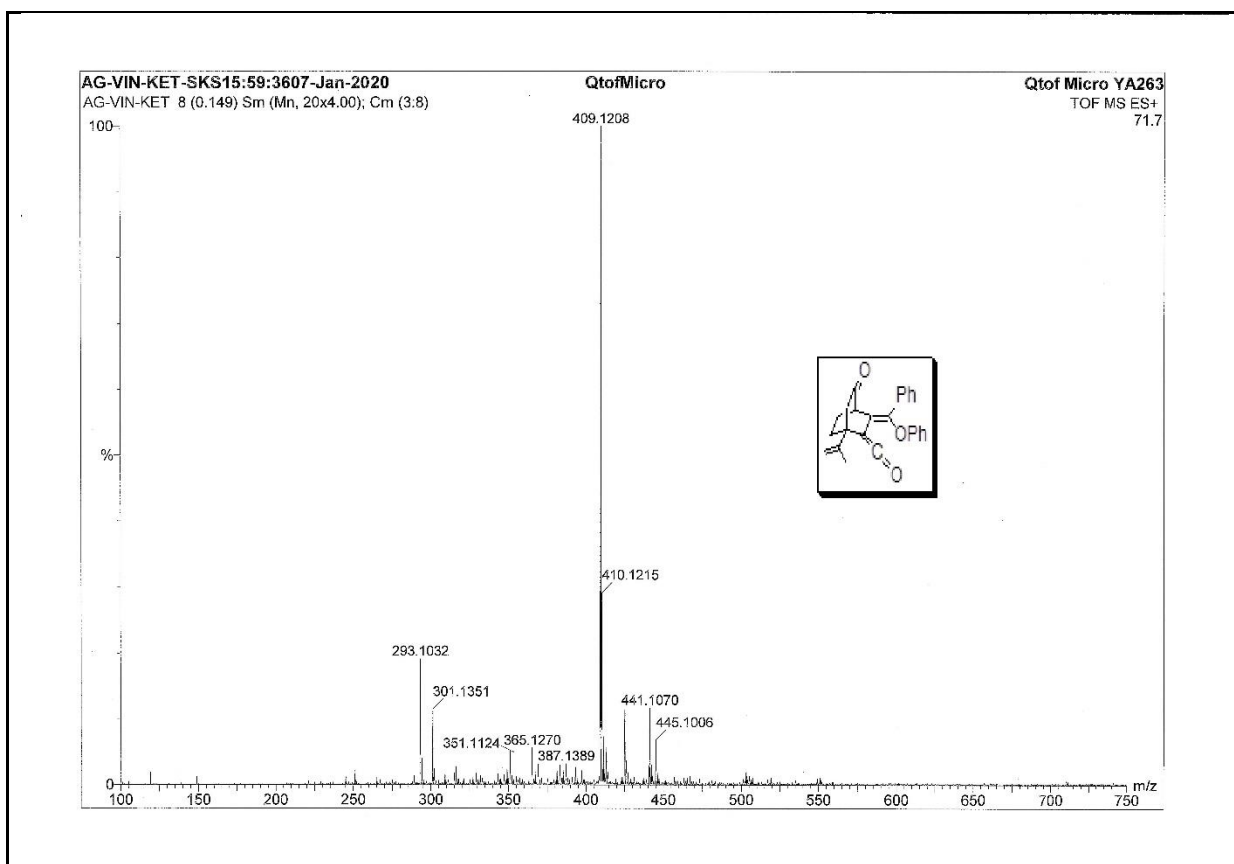


Fig.20: DEPT-135 spectrum of 10b

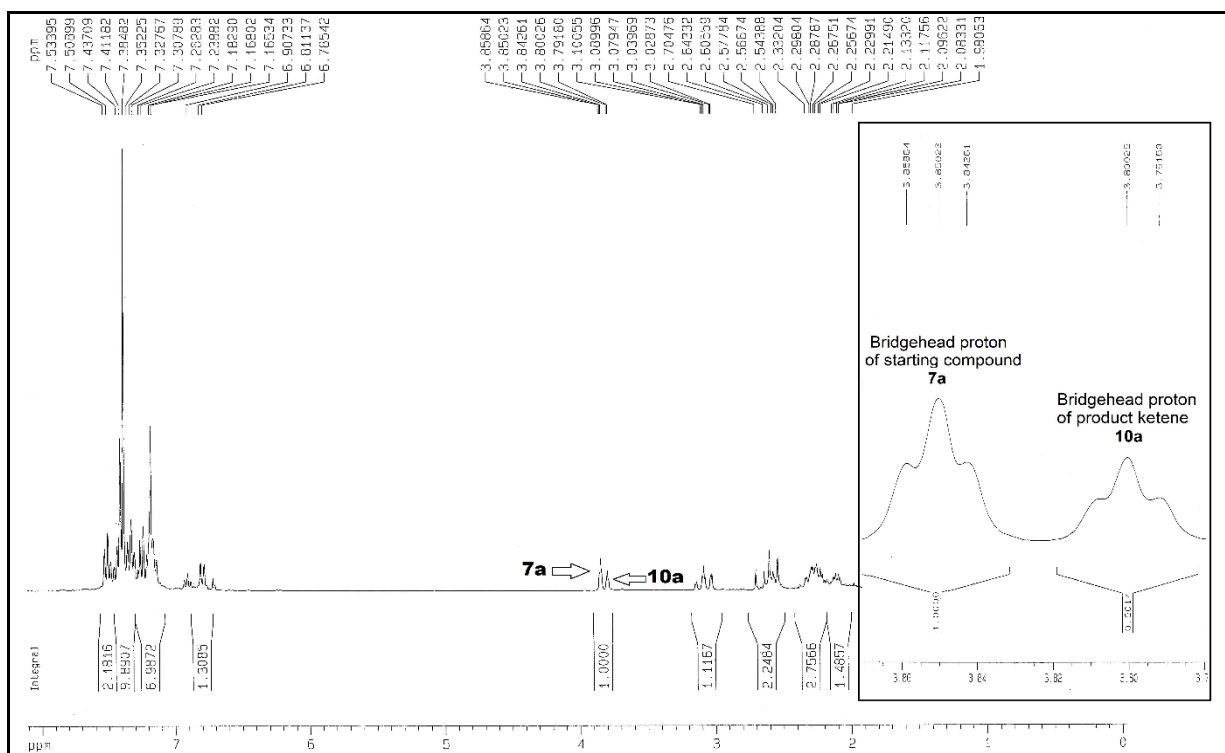


**Fig.21: IR spectrum of 10b**

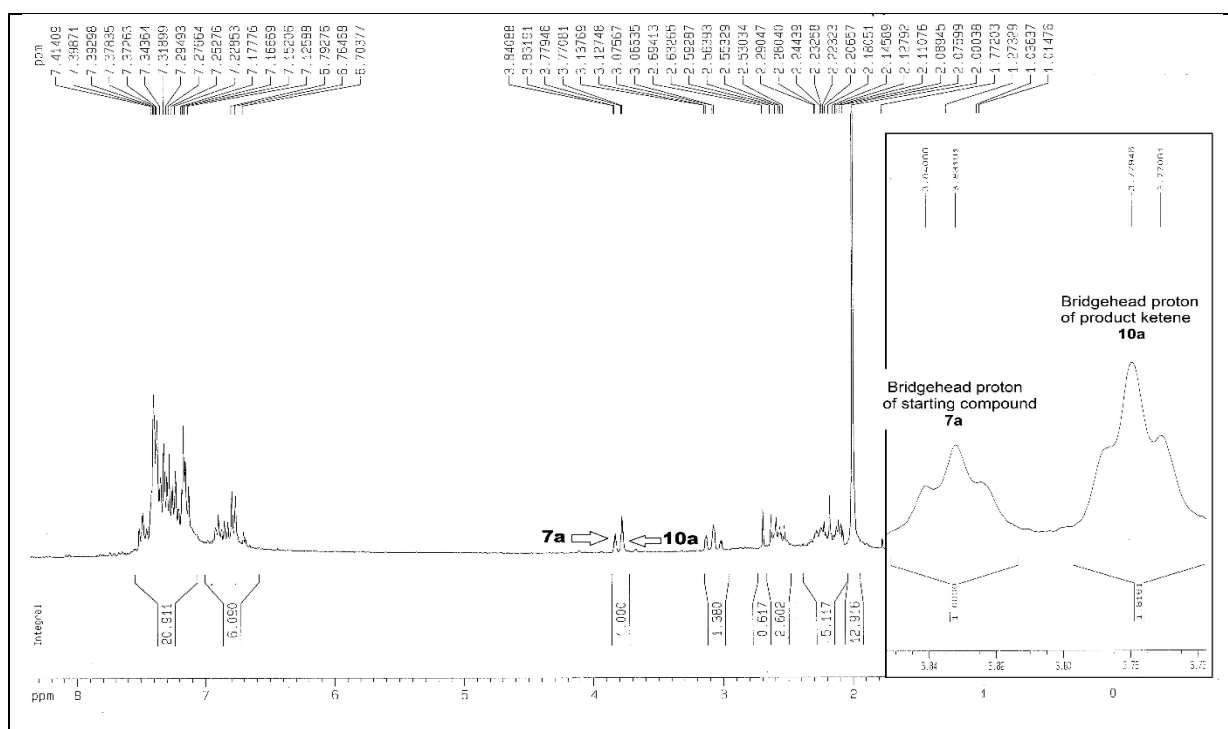


**Fig.22: Mass spectrum of 10b**

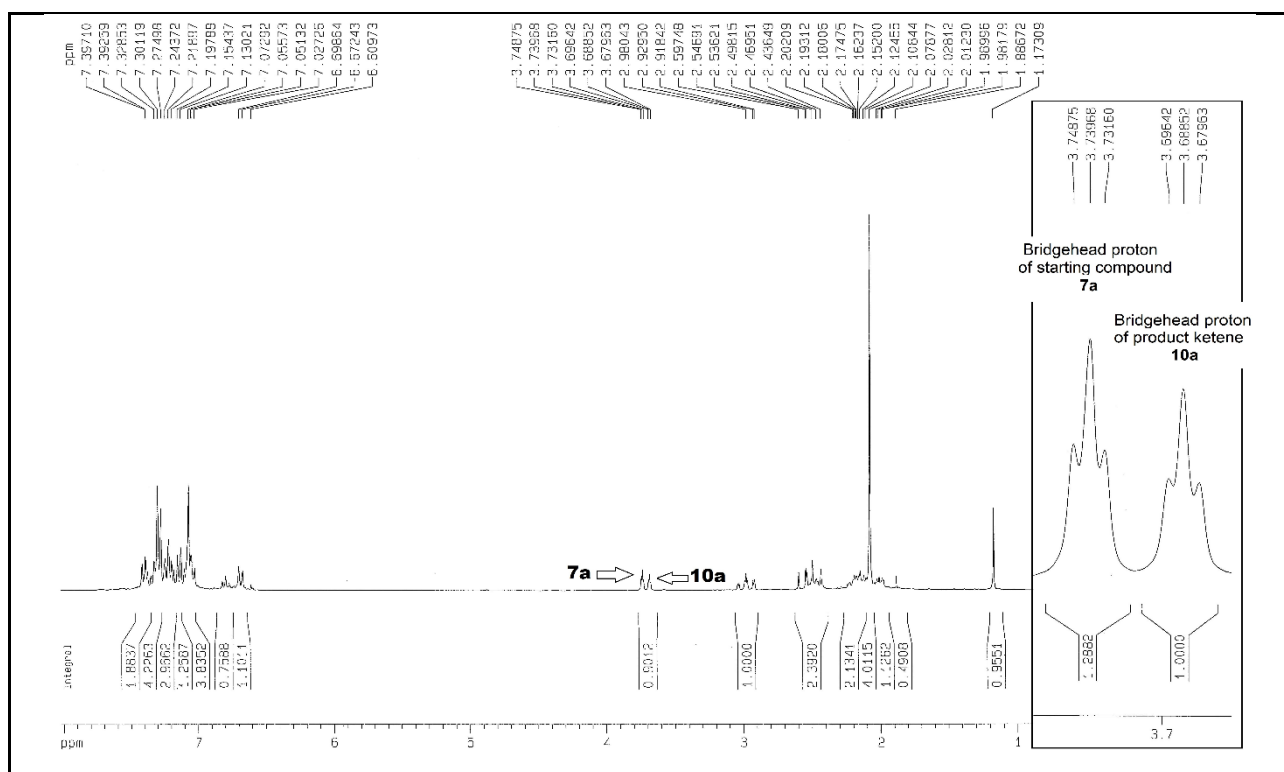
## 2-2. $^1\text{H}$ NMR spectra of the crude reaction mixture after photolysis



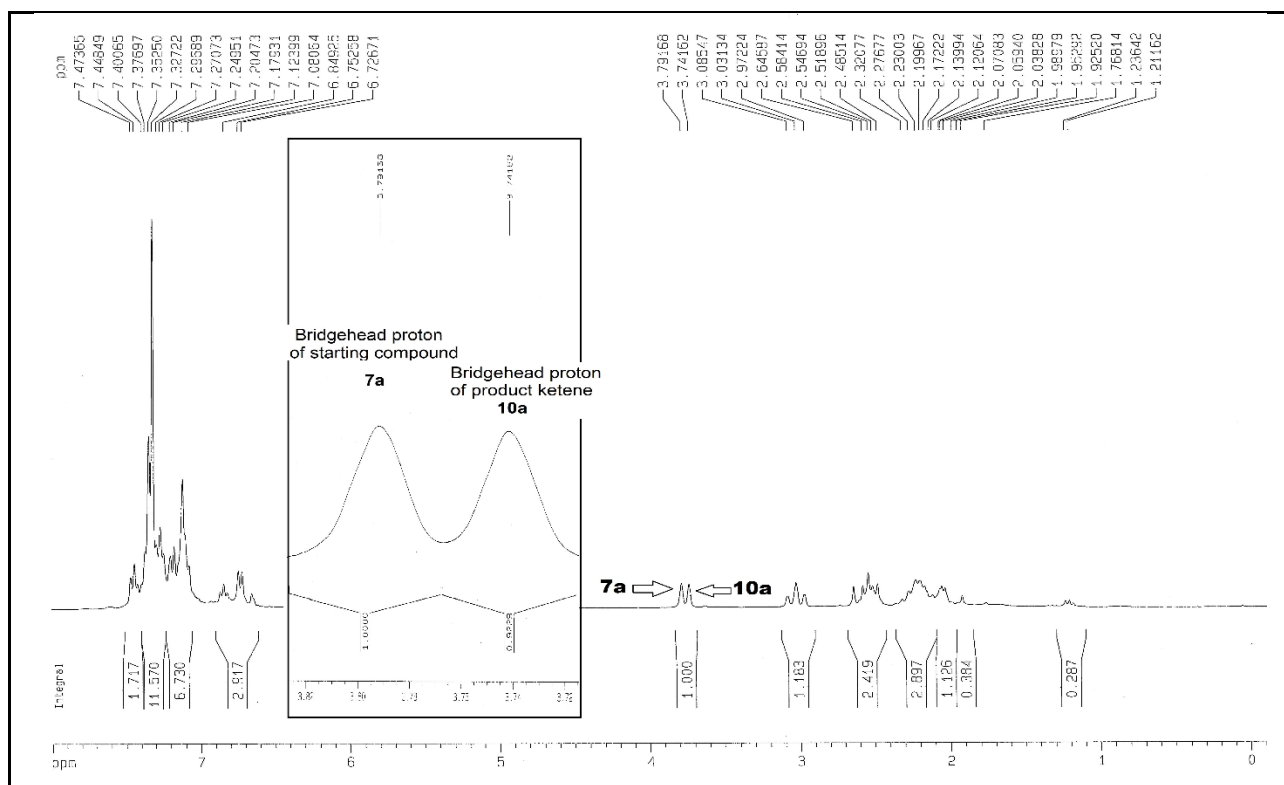
**Fig.23:**  $^1\text{H}$ -NMR spectrum of the crude reaction mixture from the photolysis (at 254 nm wavelength) of **7a** in benzene after 3 h



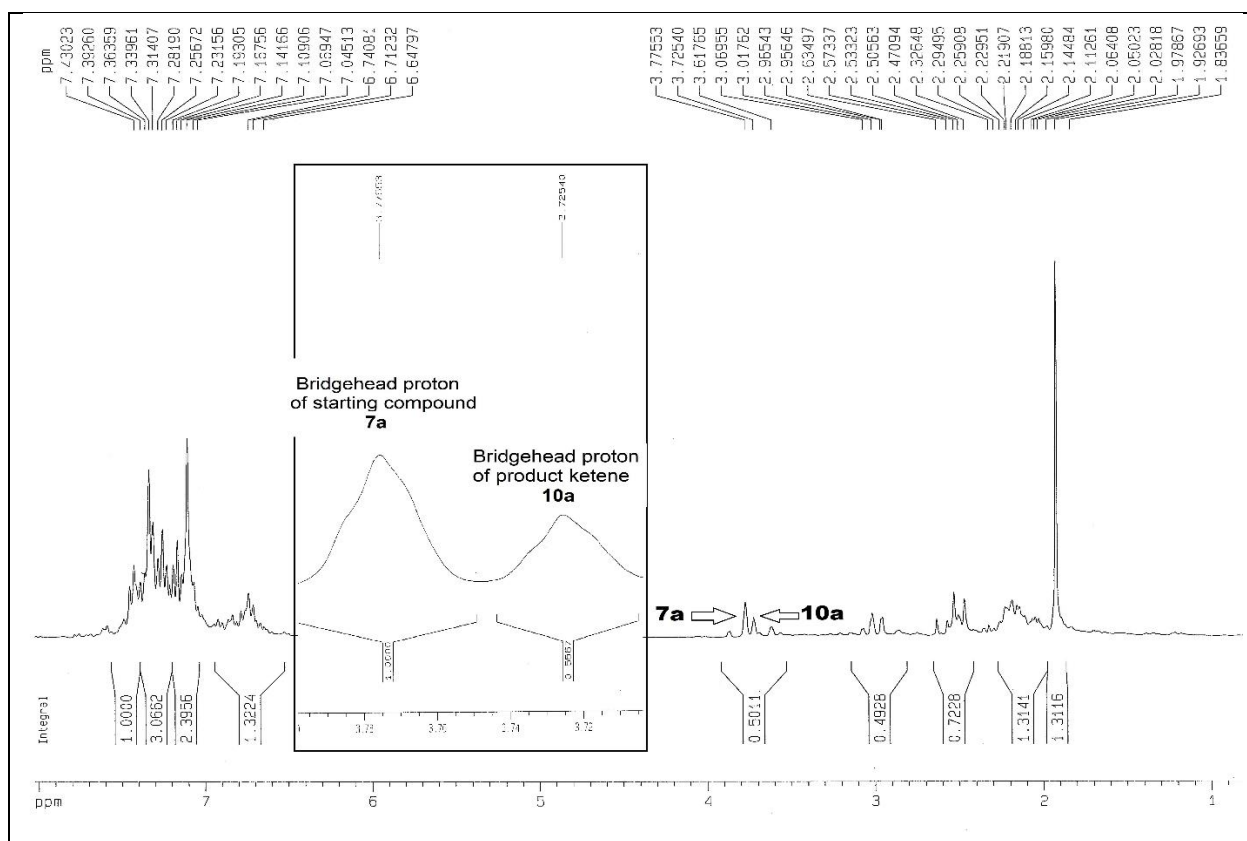
**Fig.24:**  $^1\text{H}$ -NMR spectrum of the crude reaction mixture from the photolysis (at 254 nm wavelength) of **7a** in acetonitrile after 3 h



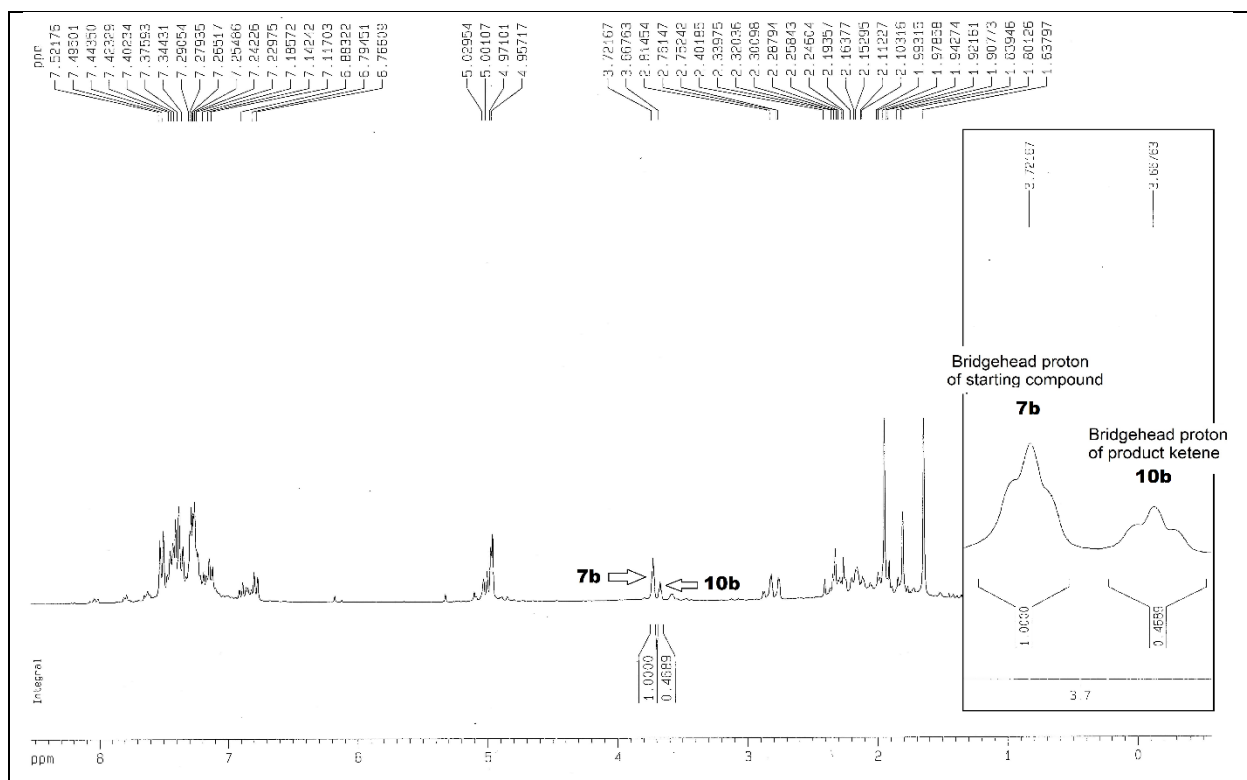
**Fig.25:**  $^1\text{H}$ -NMR spectrum of the crude reaction mixture from the photolysis (at 254 nm wavelength) of **7a** in acetone after 3 h



**Fig.26:**  $^1\text{H}$ -NMR spectrum of the crude reaction mixture from the photolysis (at 300 nm wavelength) of **7a** in benzene after 4 h



**Fig.27:** <sup>1</sup>H-NMR spectrum of the crude reaction mixture from the photolysis (at 300 nm wavelength) of **7a** in acetonitrile after 4 h



**Fig.28:** <sup>1</sup>H-NMR spectrum of the crude reaction mixture from the photolysis (at 254 nm wavelength) of **7b** in benzene after 2.5 h