

Supporting Information

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SO₄²⁻/SnO₂-Catalyzed efficient one-pot synthesis of 7,8-Dihydro-2H-Chromen-5-ones by formal [3+3] cycloaddition and 1,8-Dioxo-octahydroxanthenes via a Knoevenagel condensation

Venugopala R. Narayana,^a Zubaidha Pudukulathan,^a Ravi Varala^{*,b}

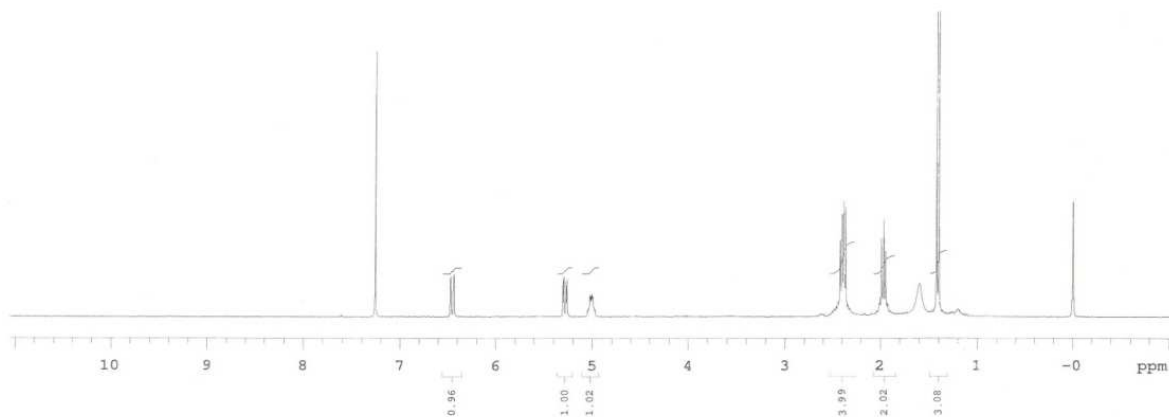
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^bDepartment of Chemistry, AP-IIIT Basara, Rajiv Gandhi University of Knowledge Technologies, Mudhole, Adilabad, Andhra Pradesh-504 107, India

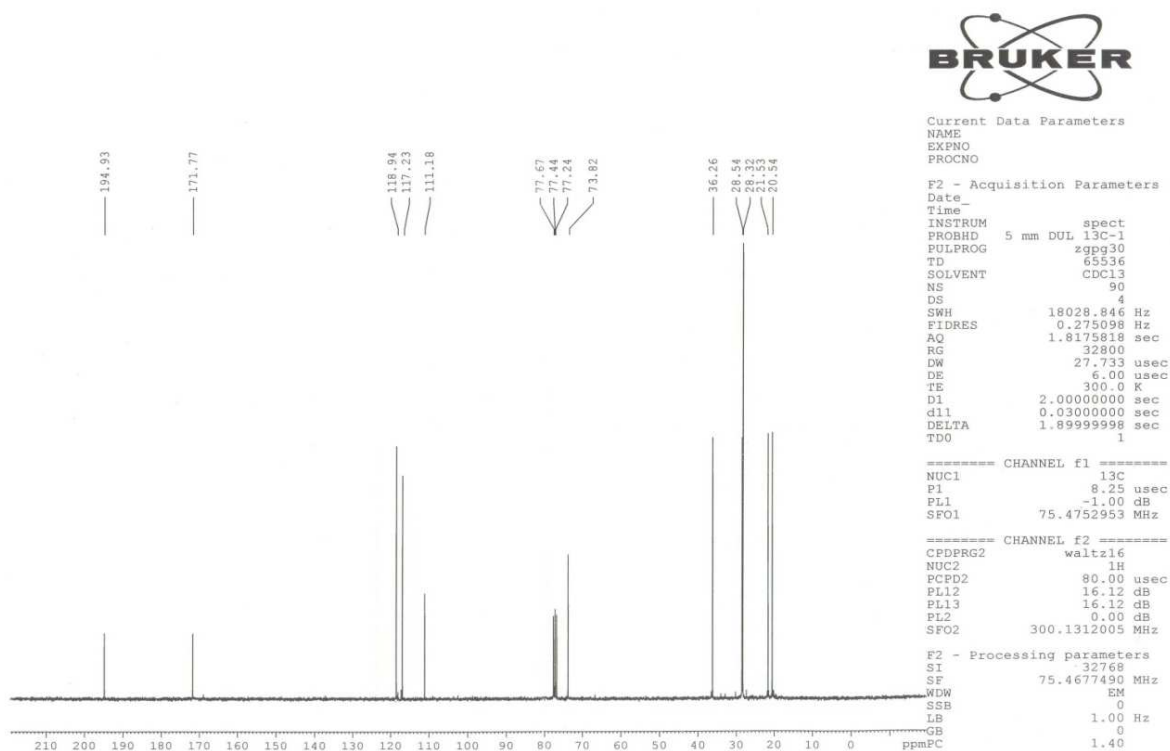
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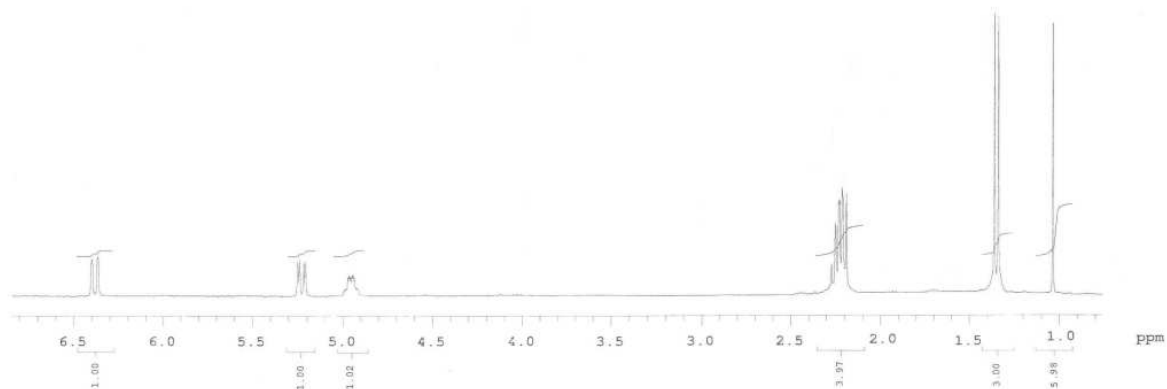
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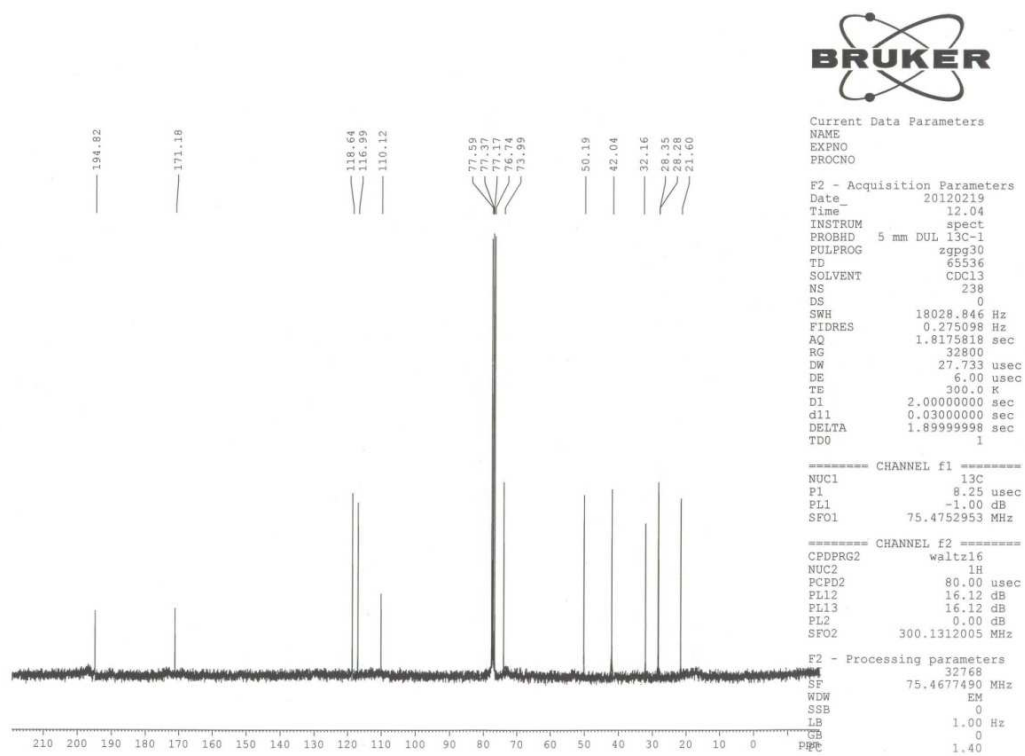
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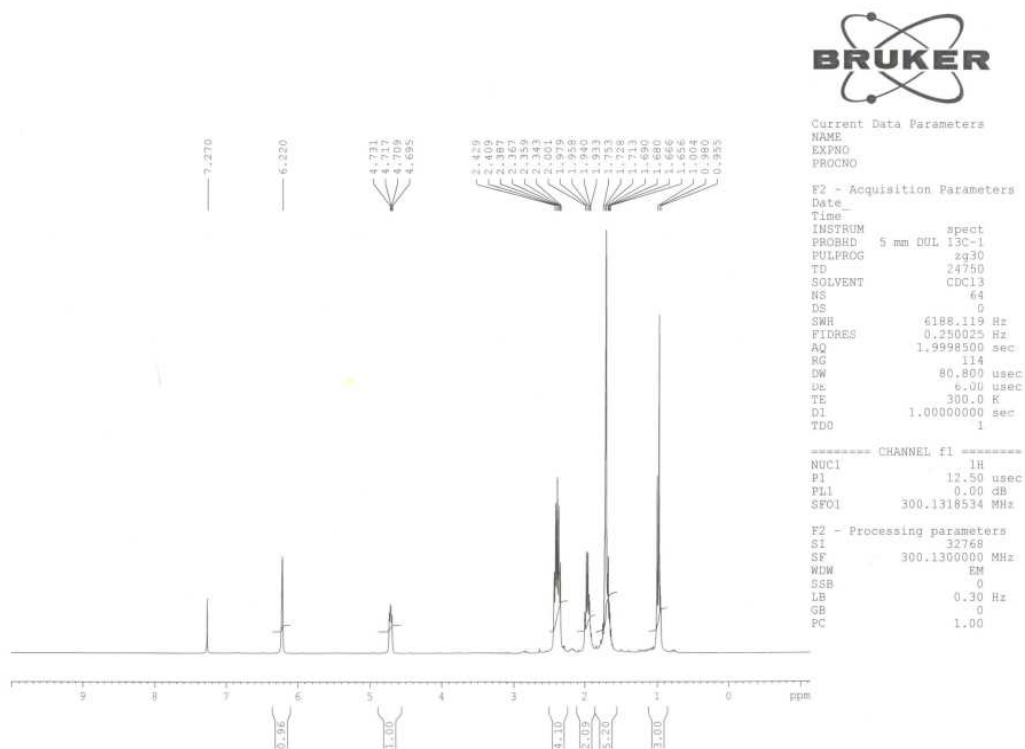
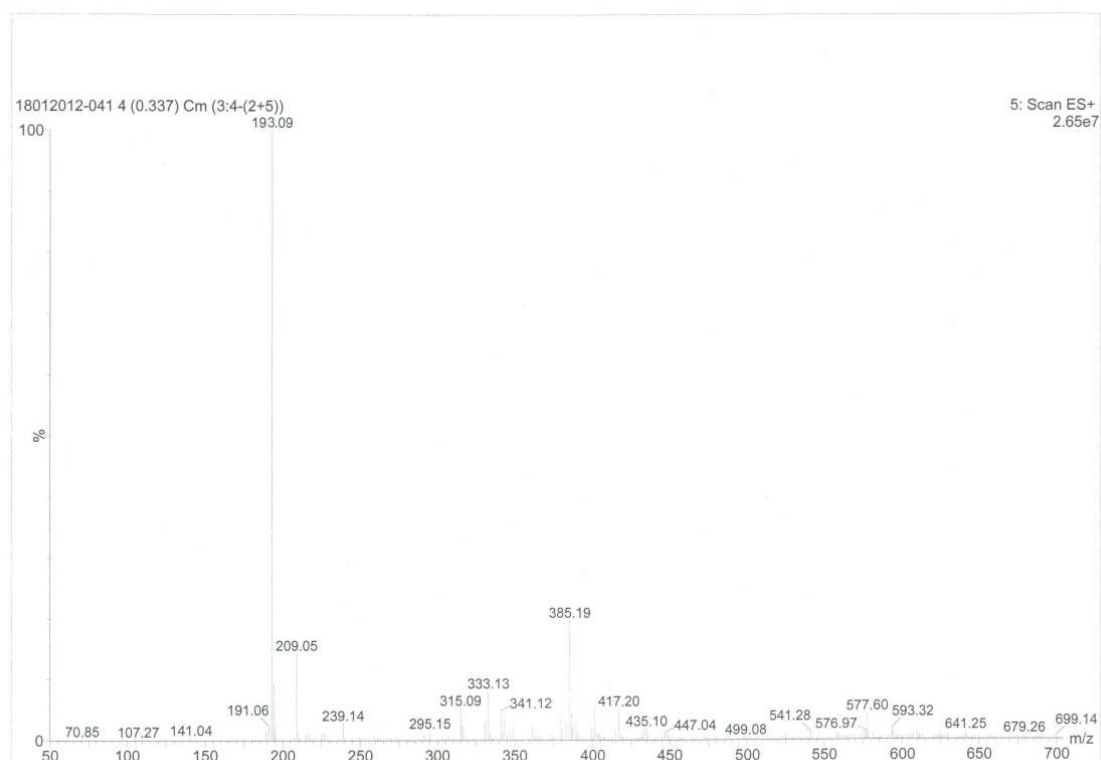
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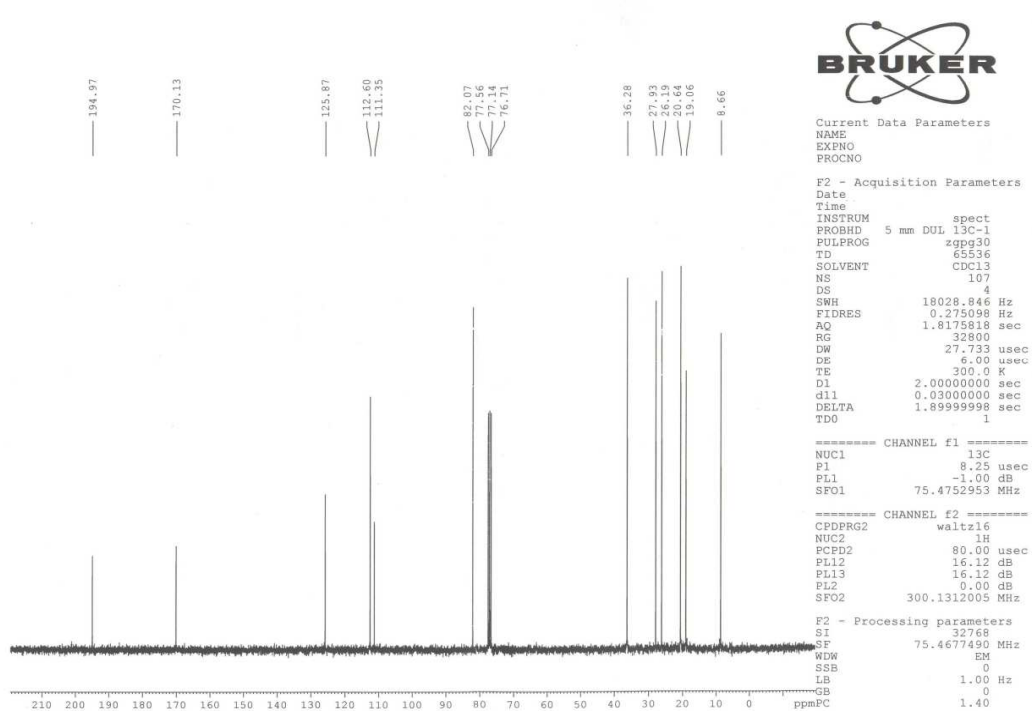
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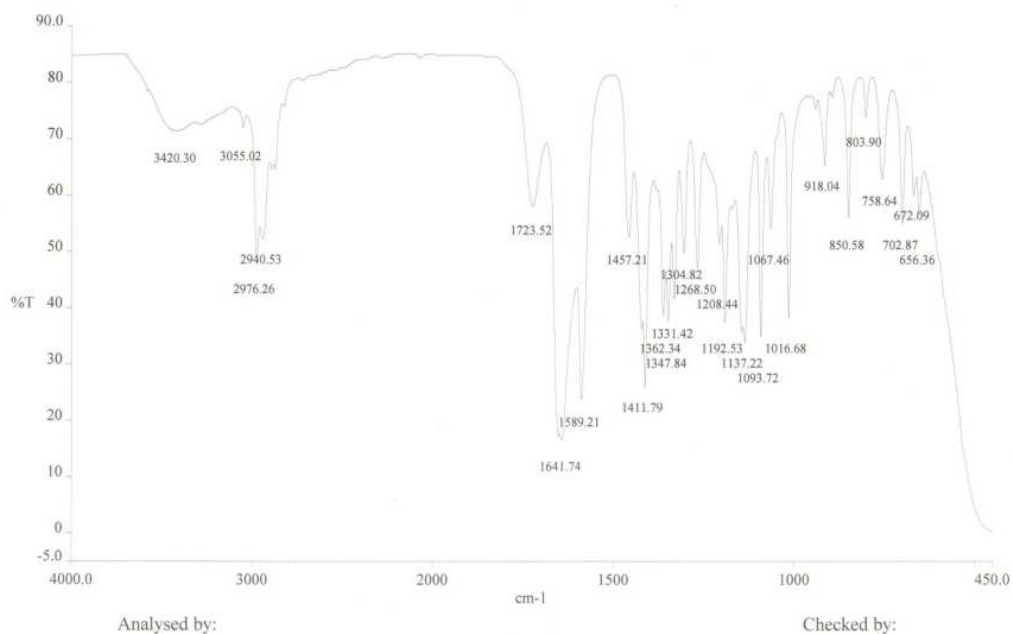
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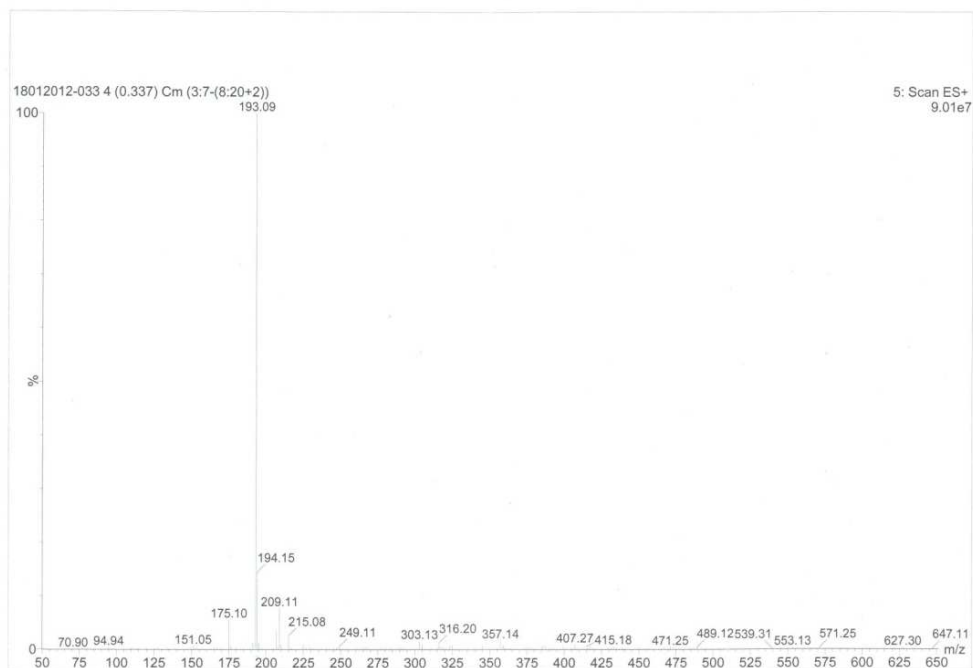
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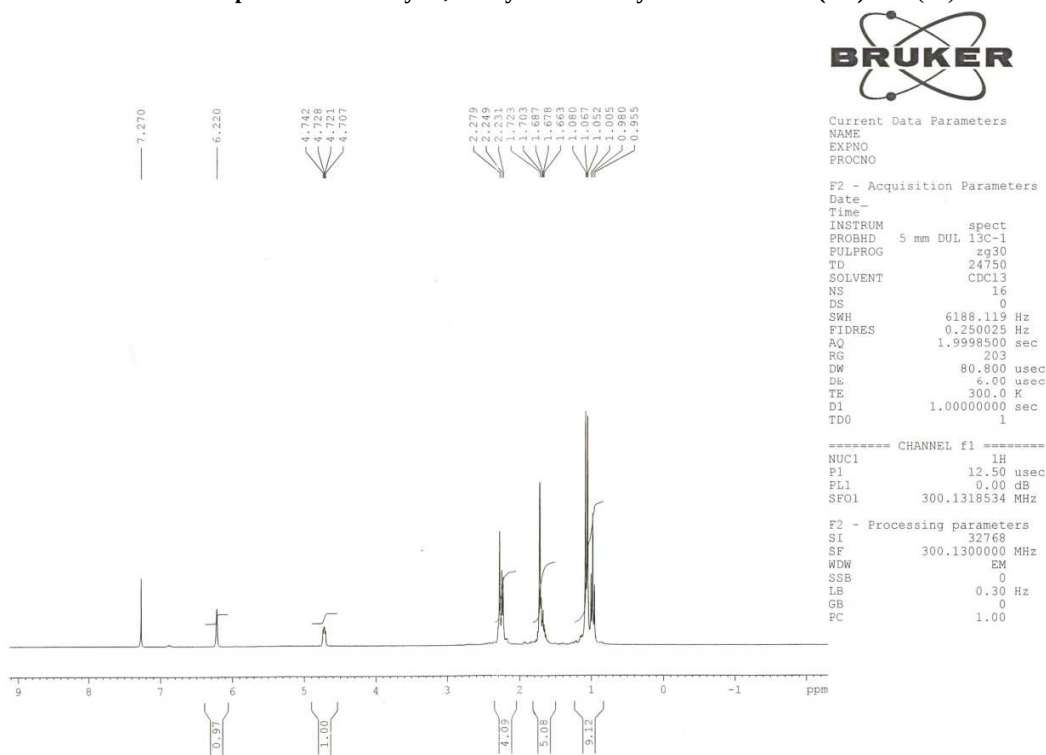
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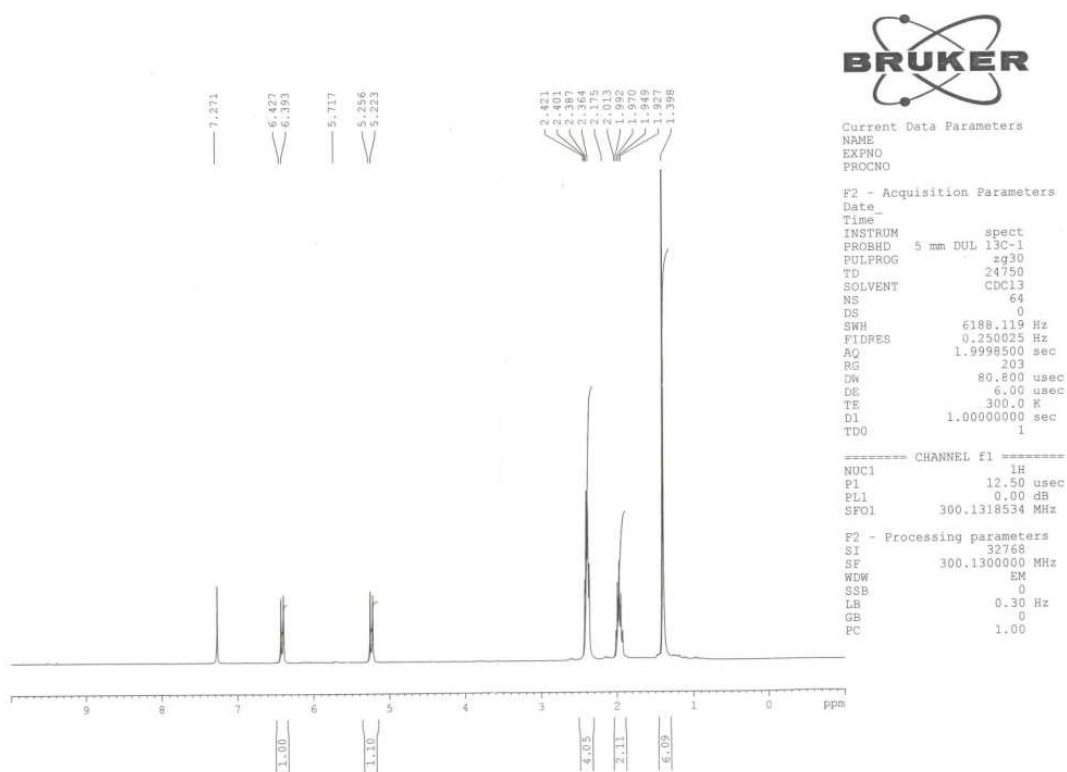
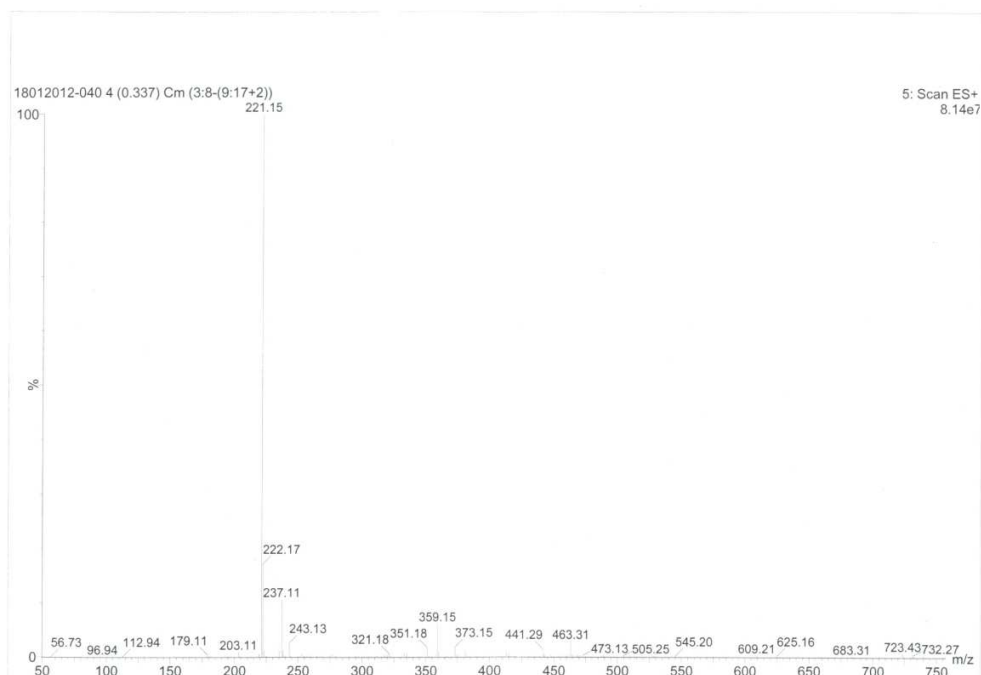
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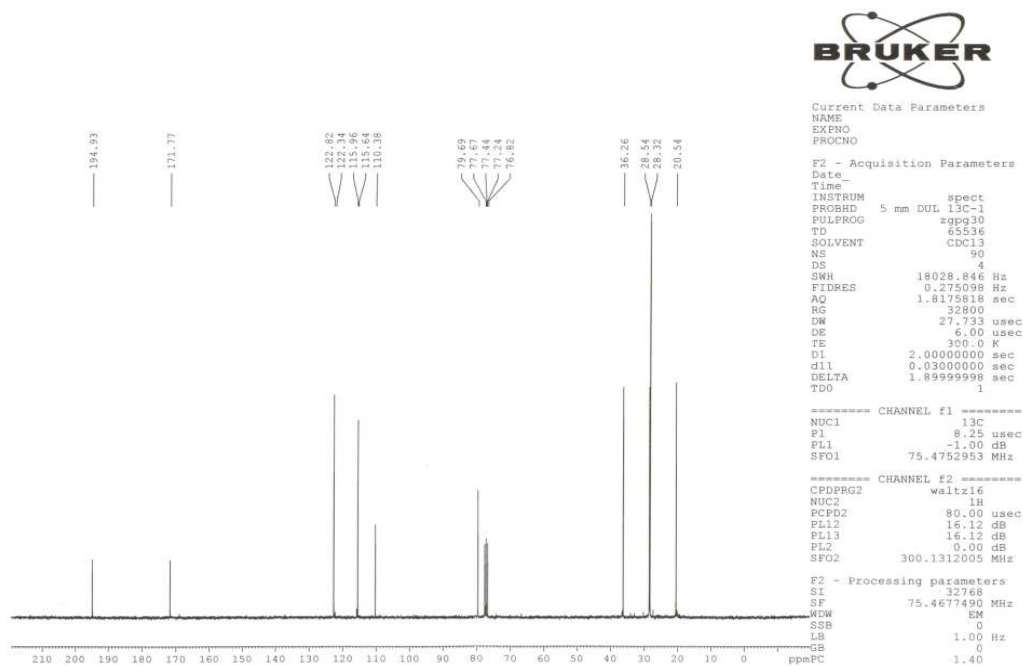


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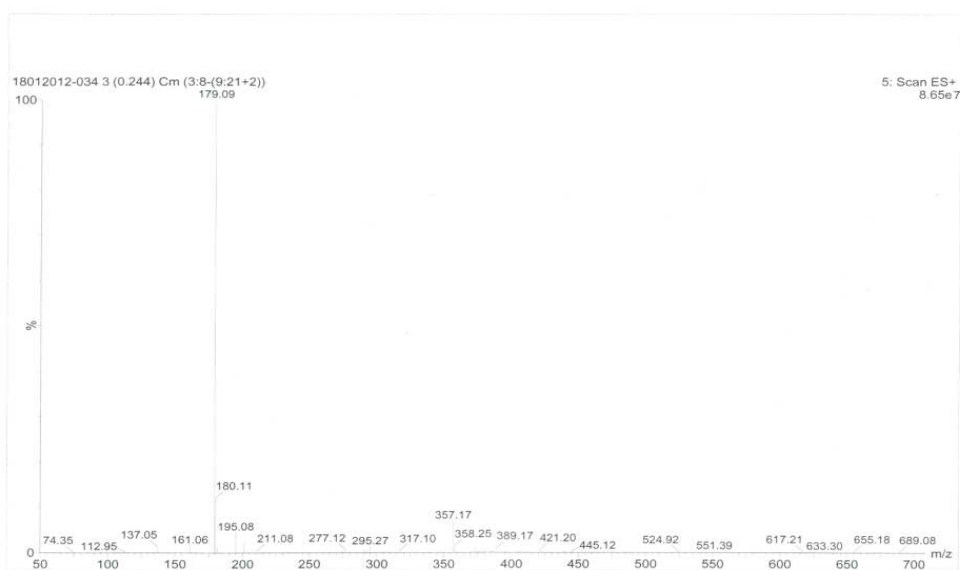


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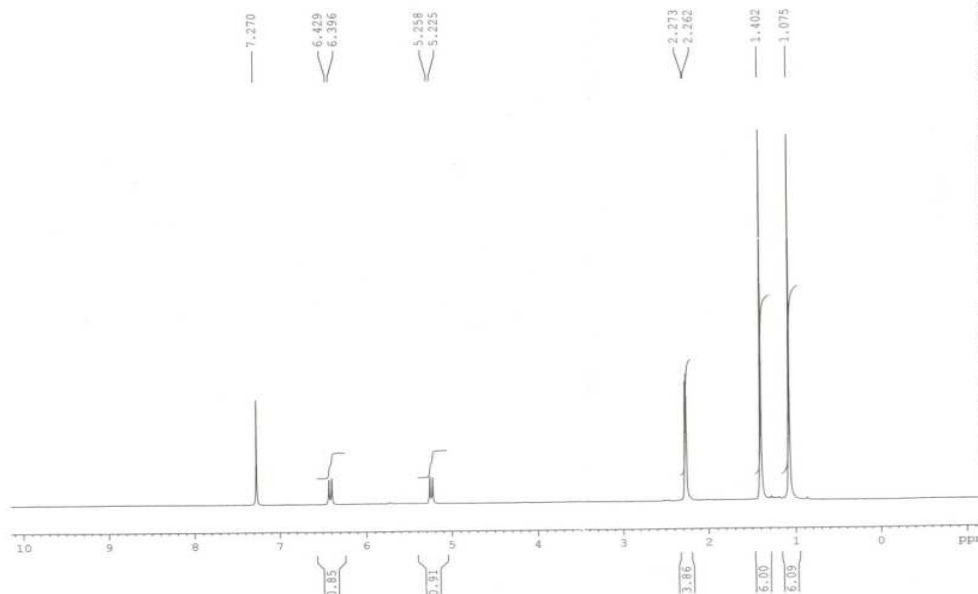




¹³C Spectrum of 7,8-dihydro-2,2-dimethyl-2H-chromen-5(6H)-one (4a)



Mass Spectrum of 7,8-dihydro-2,2-dimethyl-2H-chromen-5(6H)-one (4a)



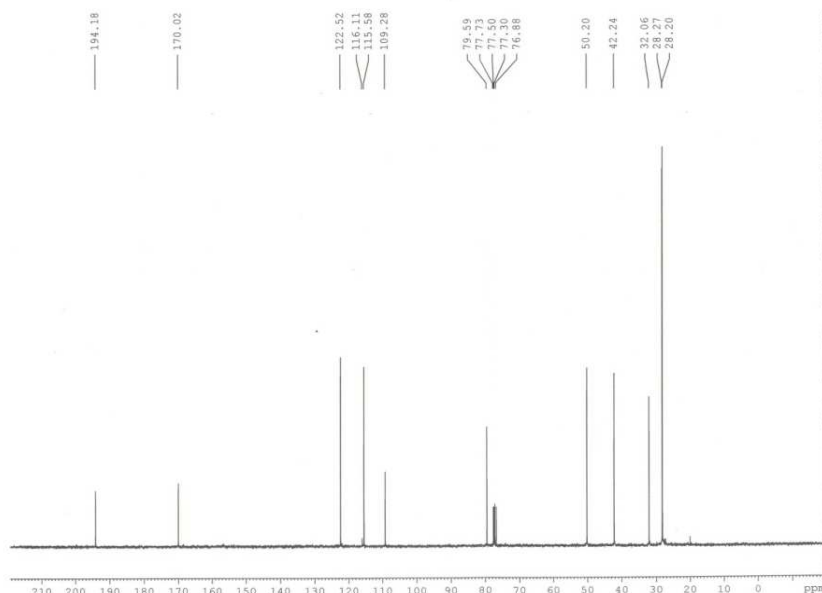
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¹H Spectrum of 7,8-dihydro-2,2,7,7-tetramethyl-2H-chromen-5(6H)one (4b)



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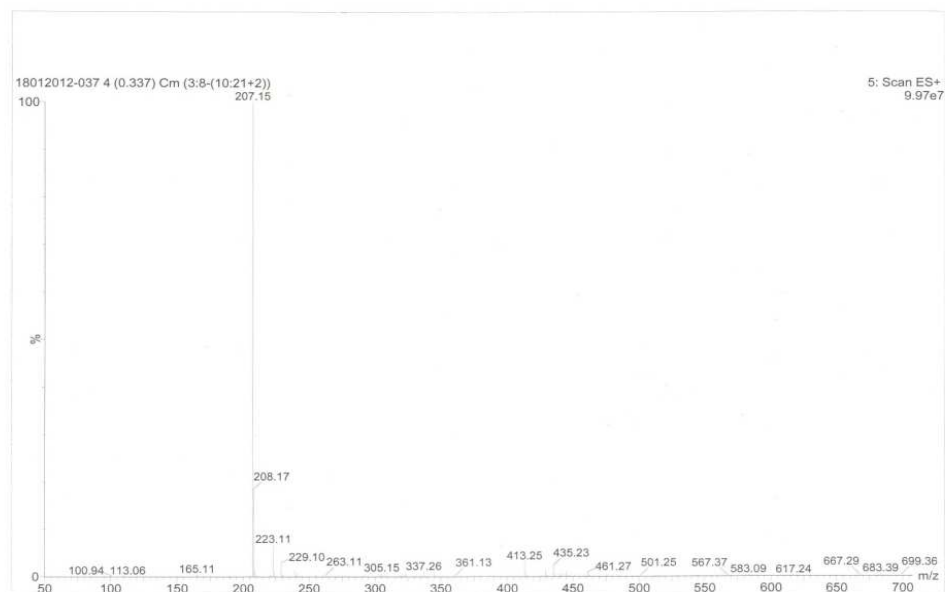
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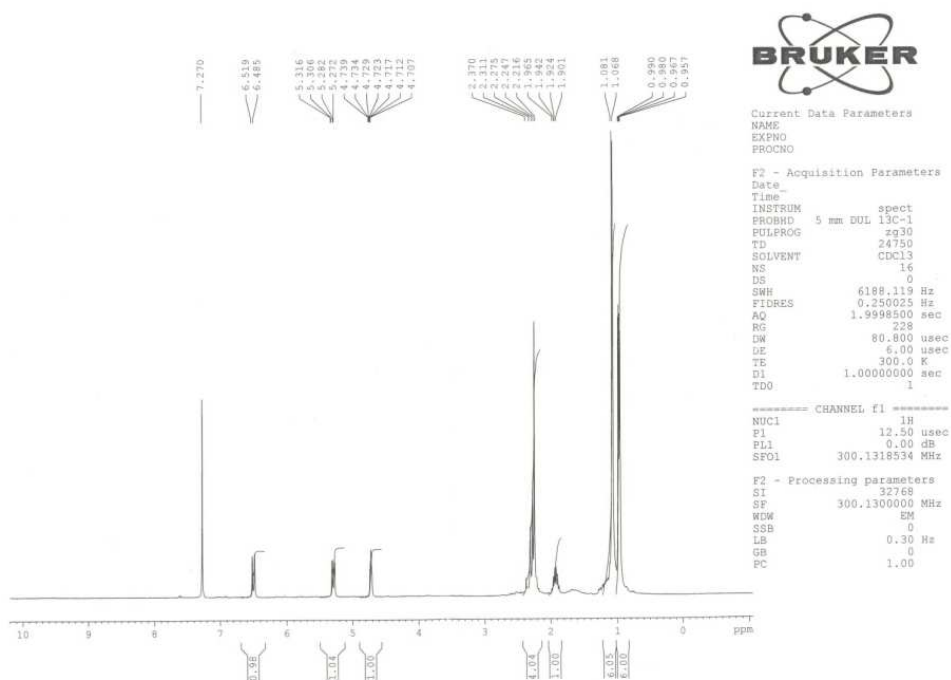
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F2 - Processing parameters
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WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

¹³C Spectrum of 7,8-dihydro-2,2,7,7-tetramethyl-2H-chromen-5(6H)one (4b)



Mass Spectrum of 7,8-dihydro-2,2,7,7-tetramethyl-2H-chromen-5(6H)one (4b)



¹H Spectrum of 7,8-dihydro-2,2,7,7-tetramethyl-2H-chromen-5(6H)one (5a)

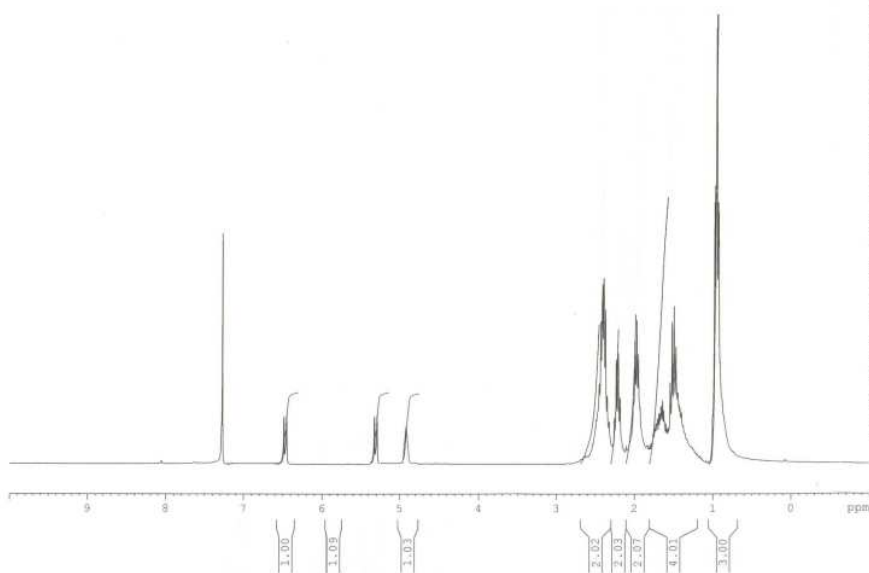


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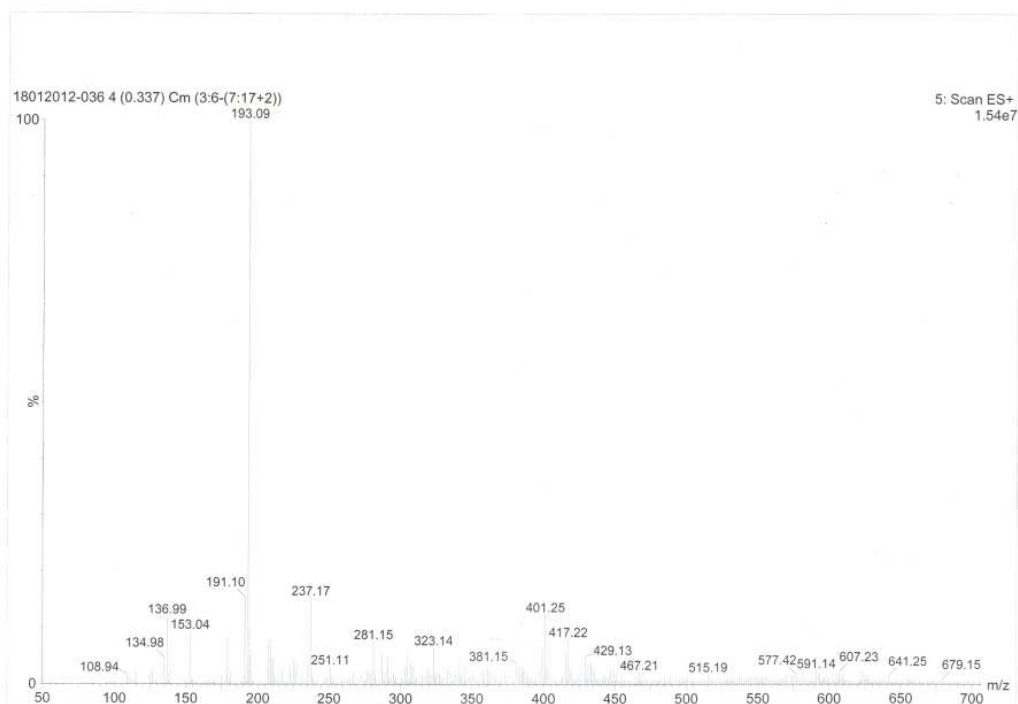
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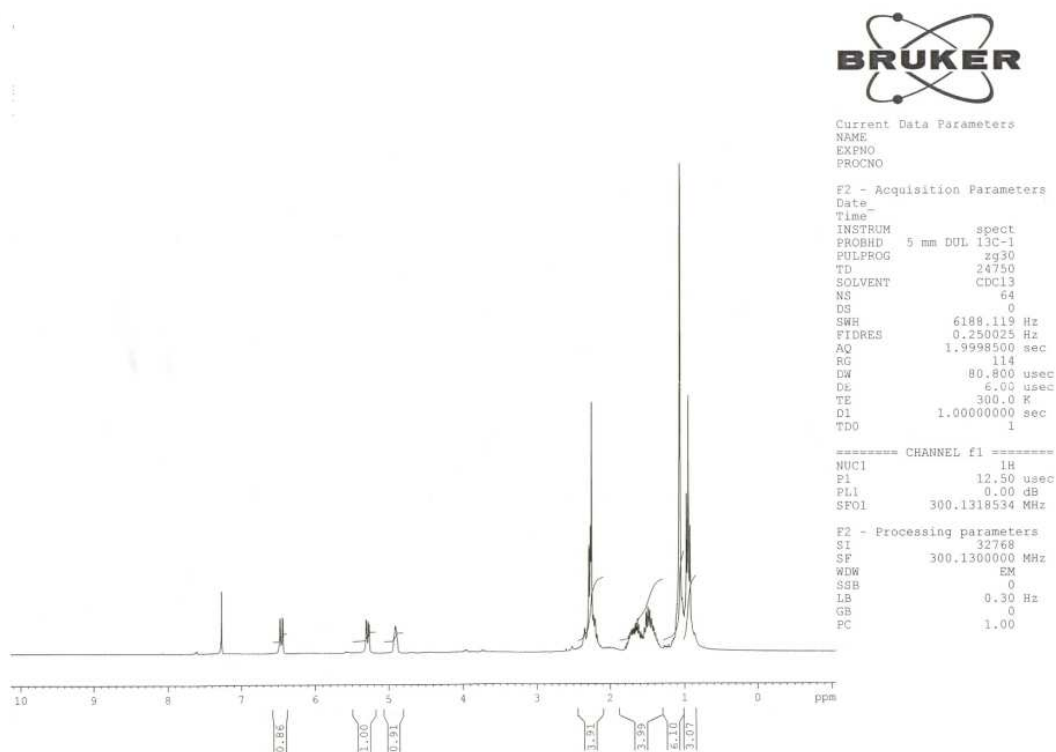
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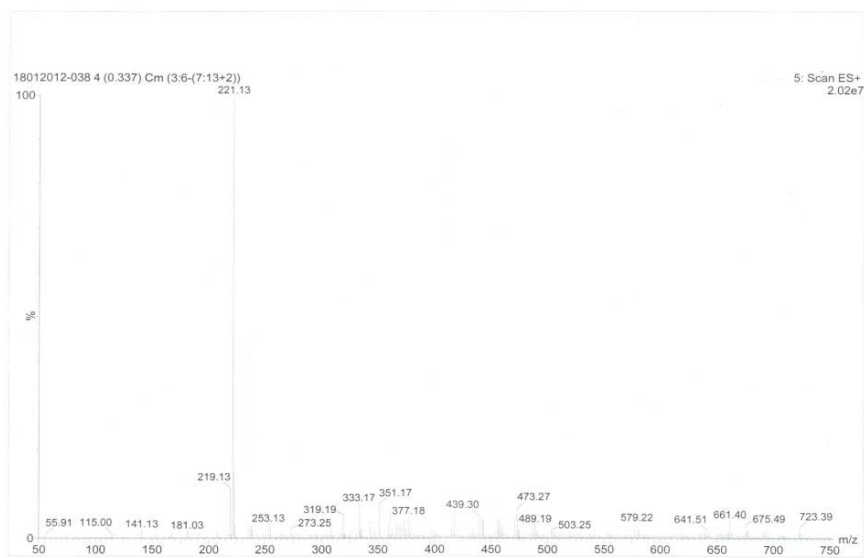
¹H Spectrum of 7,8-dihydro-2-propyl-4H-chromen-5(6H)-one (6a)



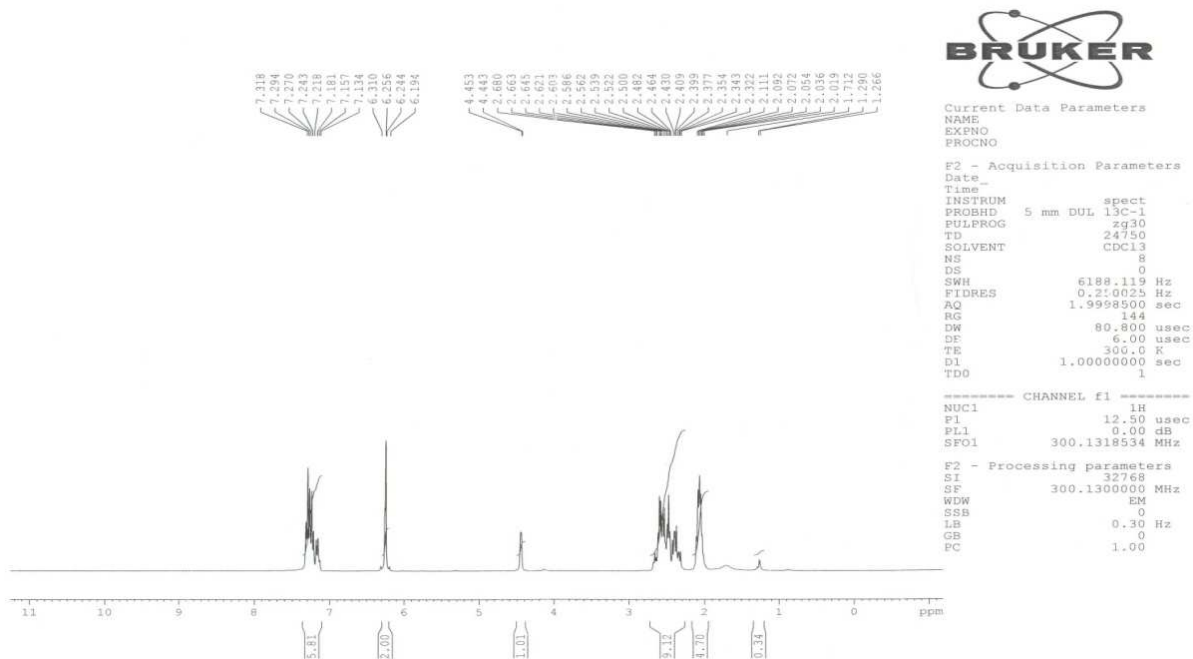
Mass Spectrum of 7,8-dihydro-2-propyl-4H-chromen-5(6H)-one (6a)



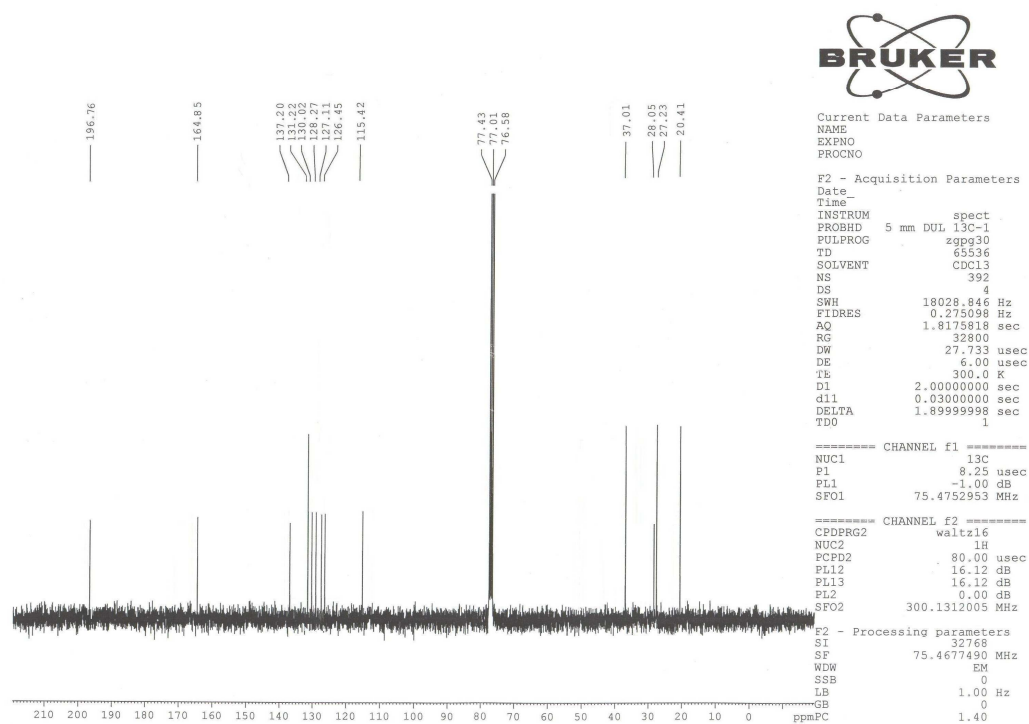
¹H Spectrum of 7,8-dihydro-2-propyl-7,7-dimethyl-2H-chromen-5(6H)-one (6b)



Mass Spectrum of 7,8-dihydro-2-propyl-7,7-dimethyl-2H-chromen-5(6H)-one (6b)

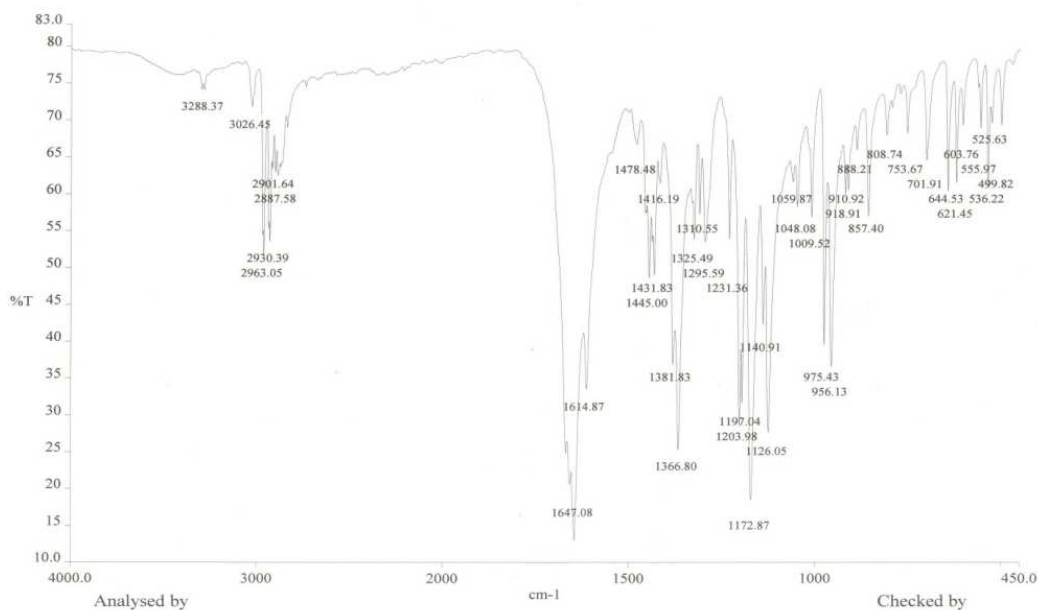


¹H Spectrum of 3,4,6,7-tetrahydro-9-styryl-2H-xanthene-1,8-(5H,9H)-dione (7a)



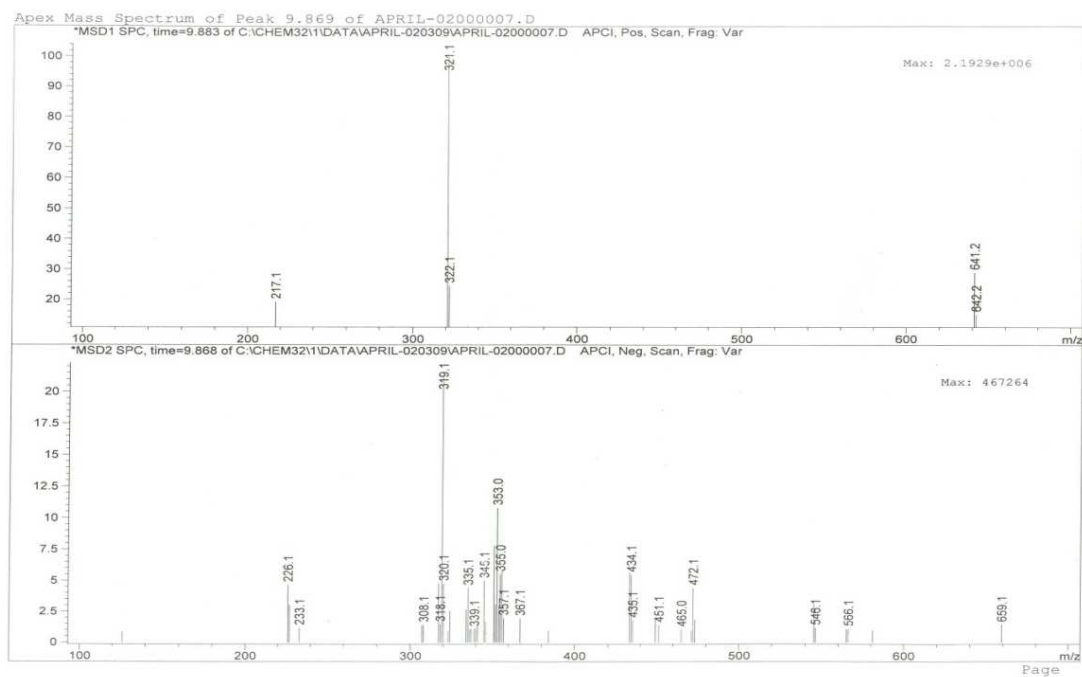
¹³C Spectrum of 3,4,6,7-tetrahydro-9-styryl-2H-xanthene-1,8-(5H,9H)-dione (7a)

Instrument Model : Spectrum 100



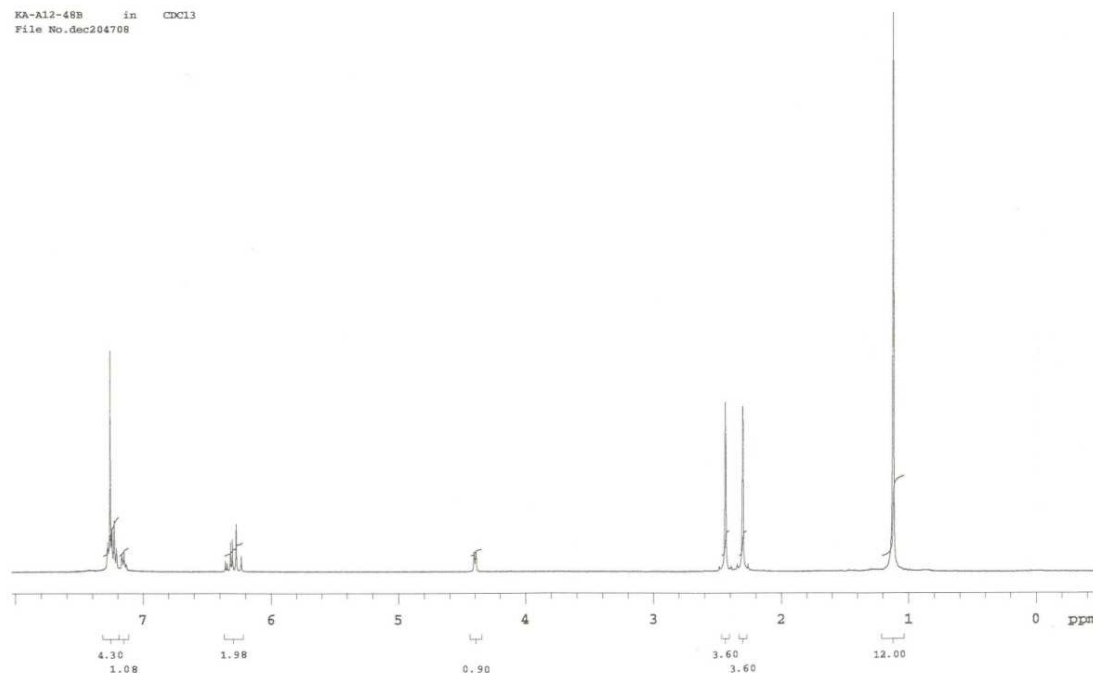
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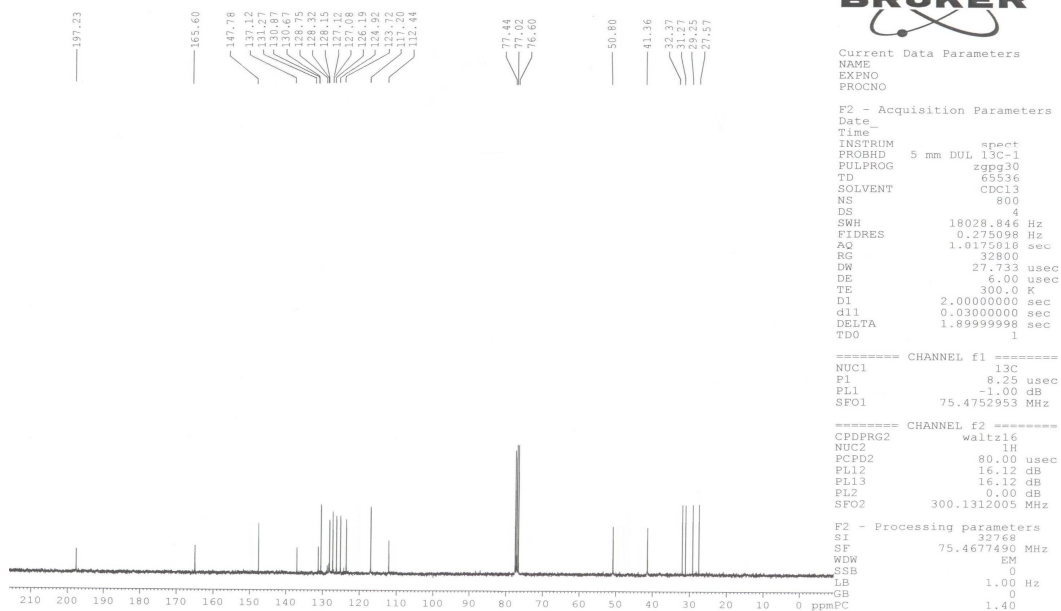


Mass Spectrum of 3,4,6,7-tetrahydro-9-styryl-2H-xanthene-1,8-(5H,9H)-dione (7a)

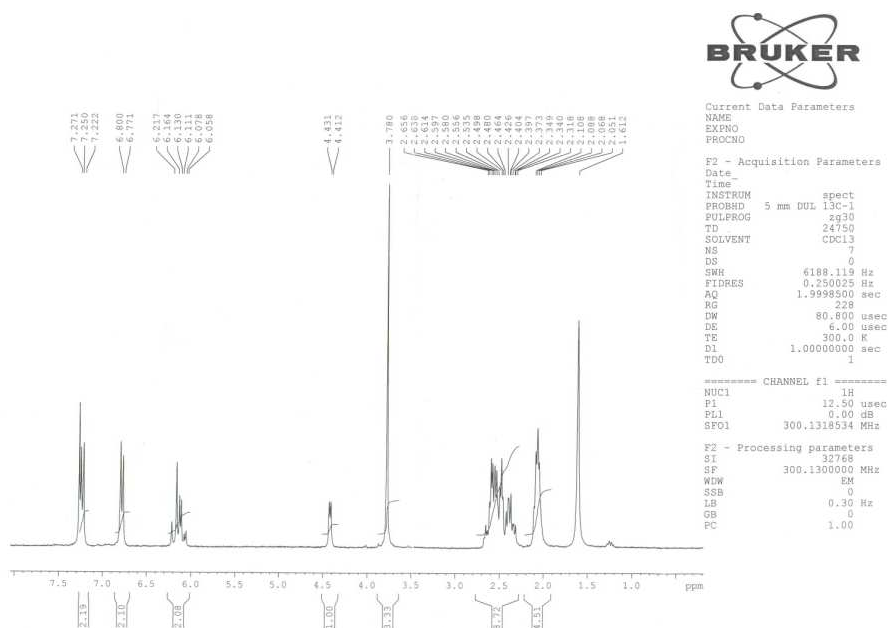
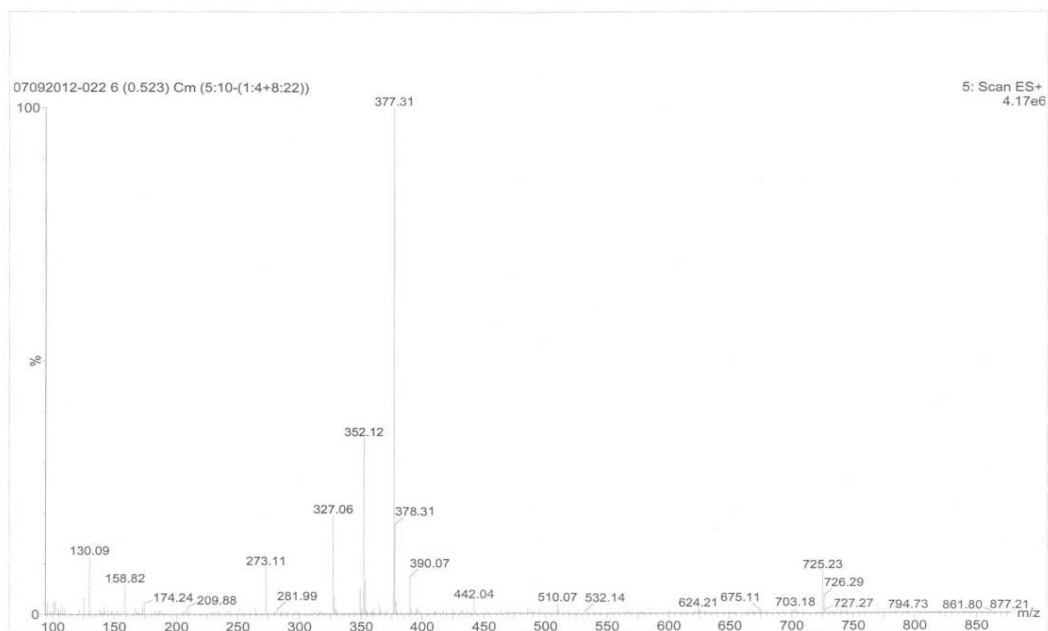
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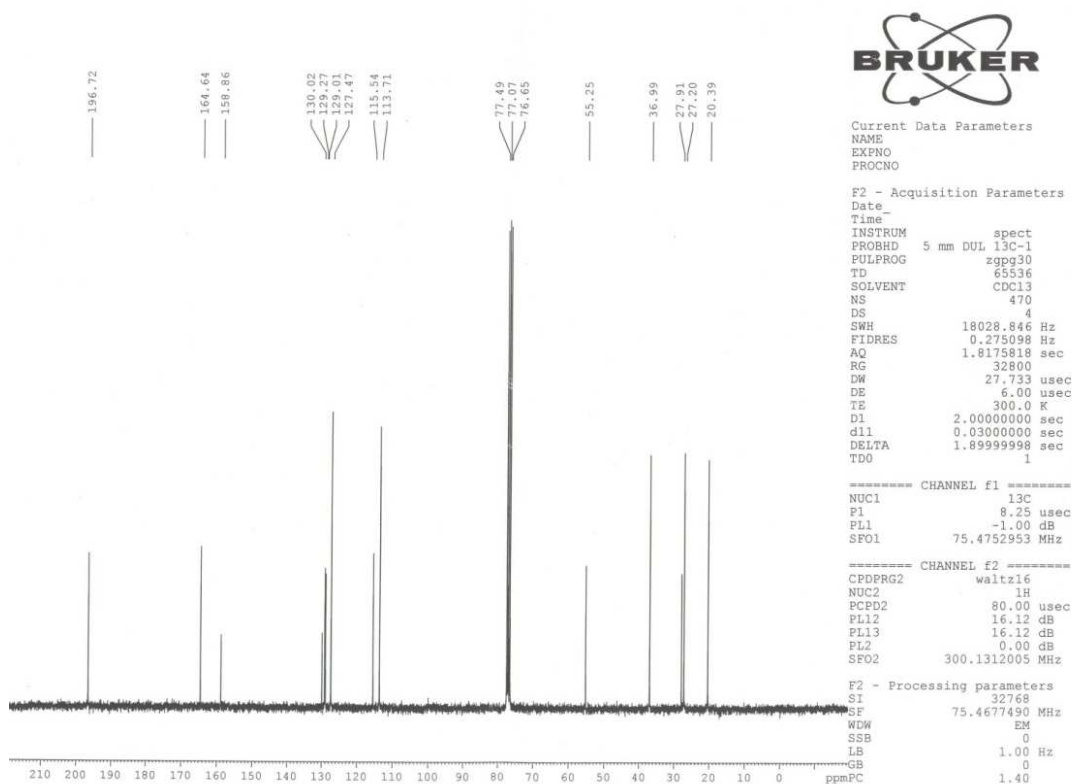


¹H NMR Spectrum of 3,4,6,7-tetrahydro-3,3,6,6-tetramethyl-9-styryl-2H-xanthene-1,8-(5H,9H)-dione (7b)

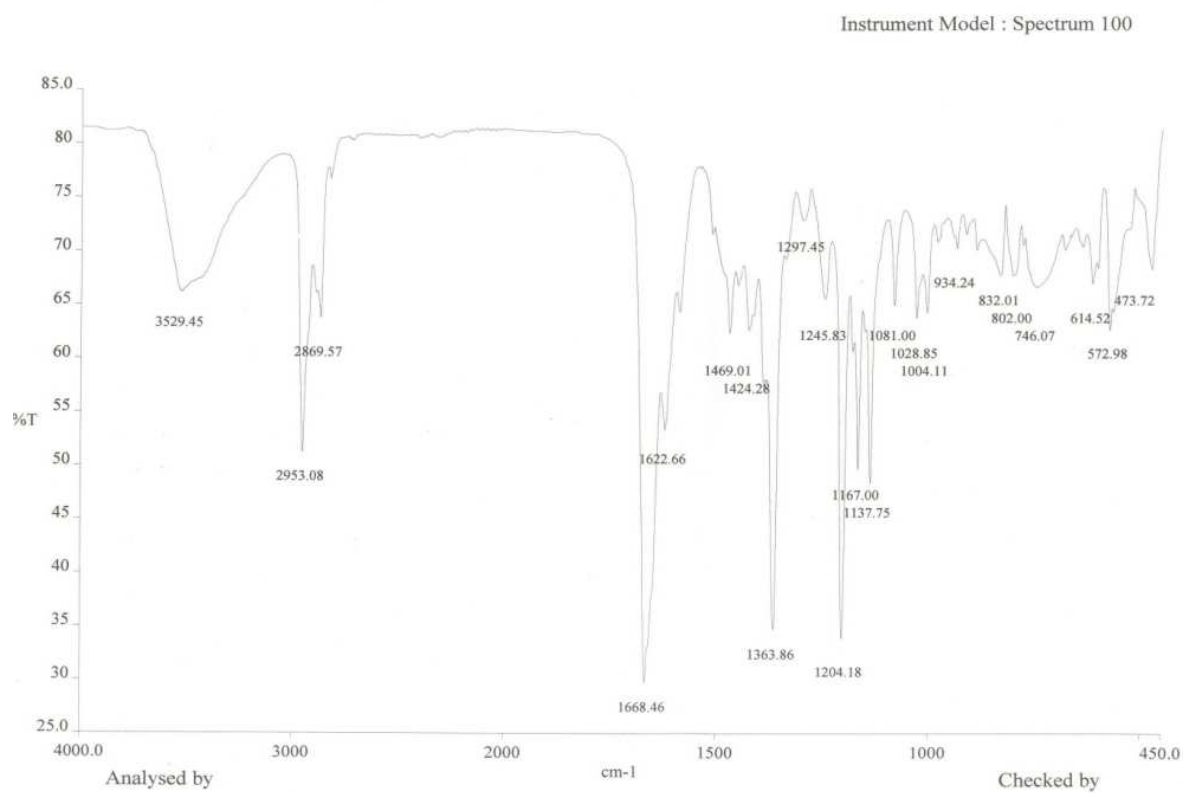


¹³C Spectrum of 3,4,6,7-tetrahydro-3,3,6,6-tetramethyl-9-styryl-2H-xanthene-1,8-(5H,9H)-dione (7b)

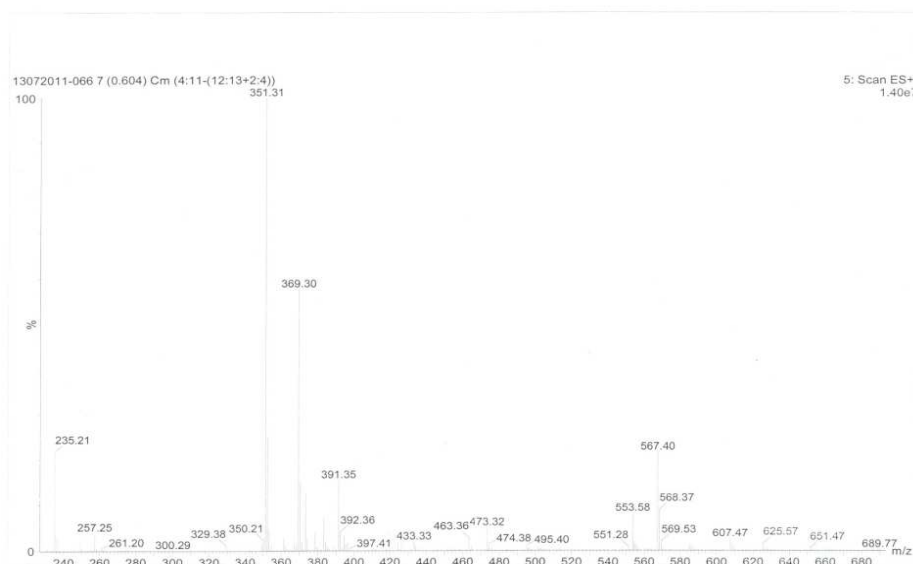




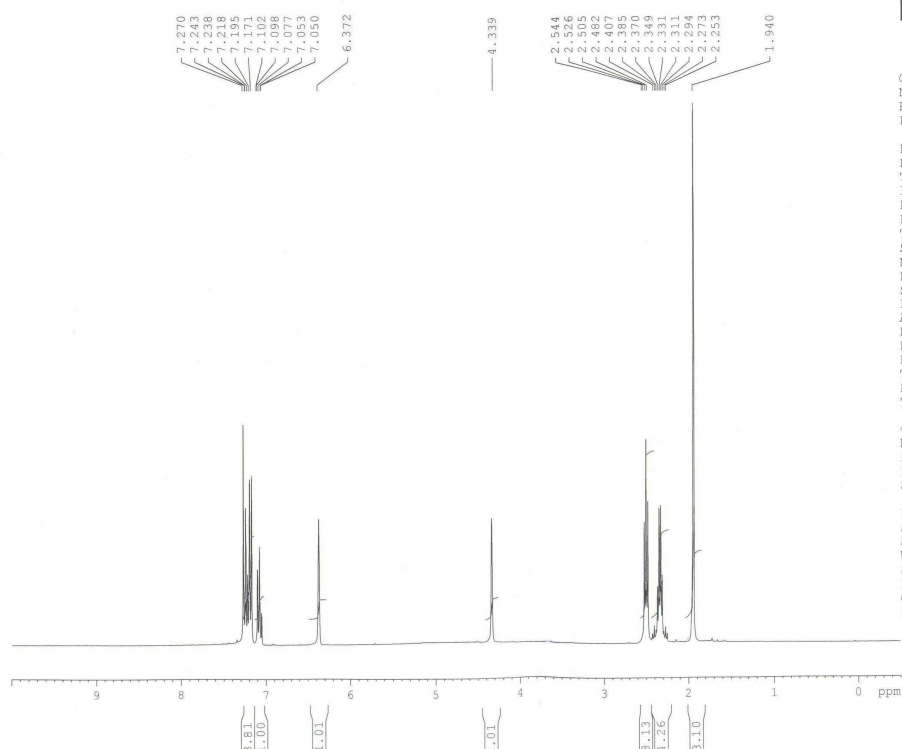
¹³C Spectrum of 9-[(E)-2-(4-methoxyphenyl)-1-ethenyl]-2,3,4,5,6,7,8,9-octahydro-1H-1,8-xanthenedione (8a)



IR Spectrum of 9-[(*E*)-2-(4-methoxyphenyl)-1-ethenyl]-2,3,4,5,6,7,8,9-octahydro-1*H*-1,8-xanthenedione (8a)



Mass Spectrum of 9-[(*E*)-2-(4-methoxyphenyl)-1-ethenyl]-2,3,4,5,6,7,8,9-octahydro-1*H*-1,8-xanthenedione (8a)



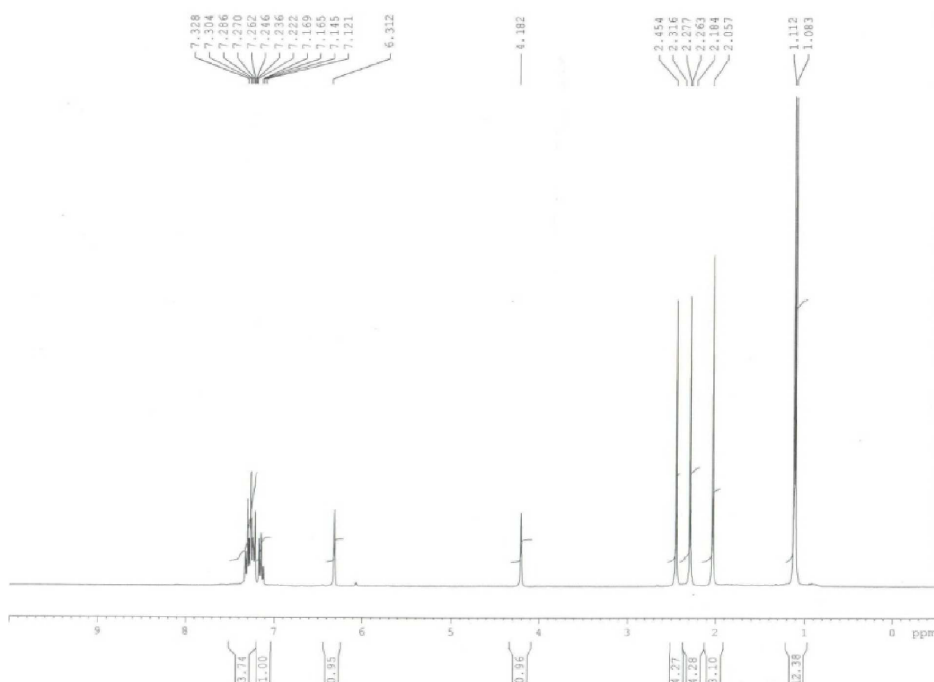
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¹H spectrum of 9-[(*E*)-1-methyl-2-phenyl-1-ethenyl]-2,3,4,5,6,7,8,9-octahydro-1H-1,8-xanthenedione (9a)



Current Data Parameters
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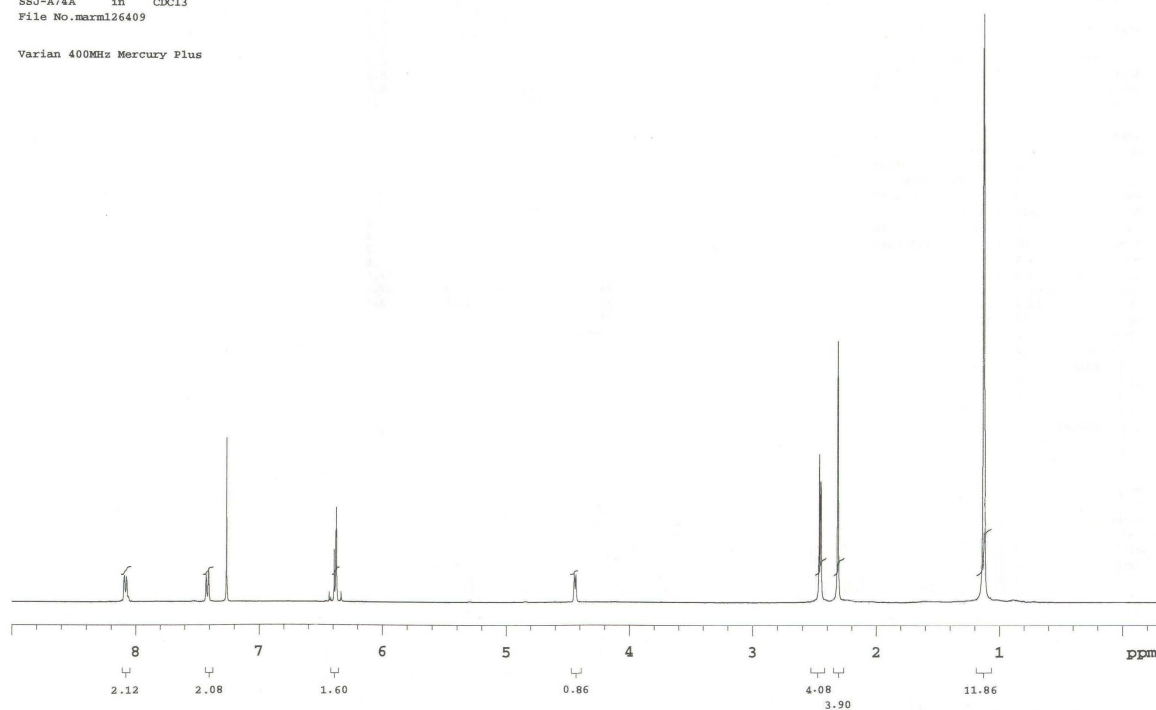
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PC 1.00

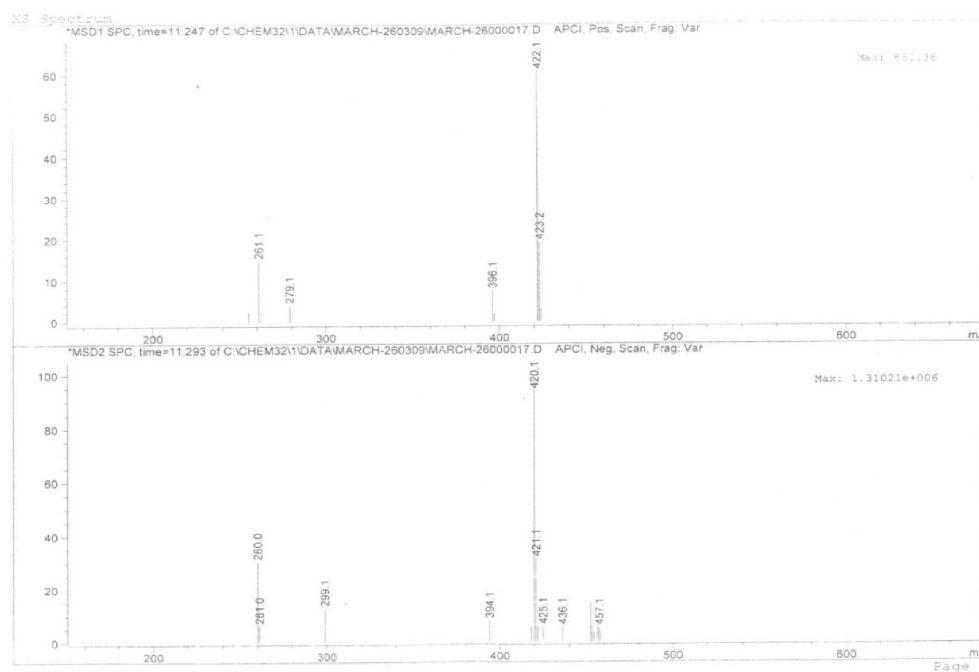
¹H spectrum of 3,3,6,6-tetramethyl-9-[(*E*)-1-methyl-2-phenyl-1-ethenyl]-2,3,4,5,6,7,8,9-octahydro-1H-1,8-xanthenedione (9b)

SSJ-A74A in CDCl₃
 File No.marm126409
 Varian 400MHz Mercury Plus

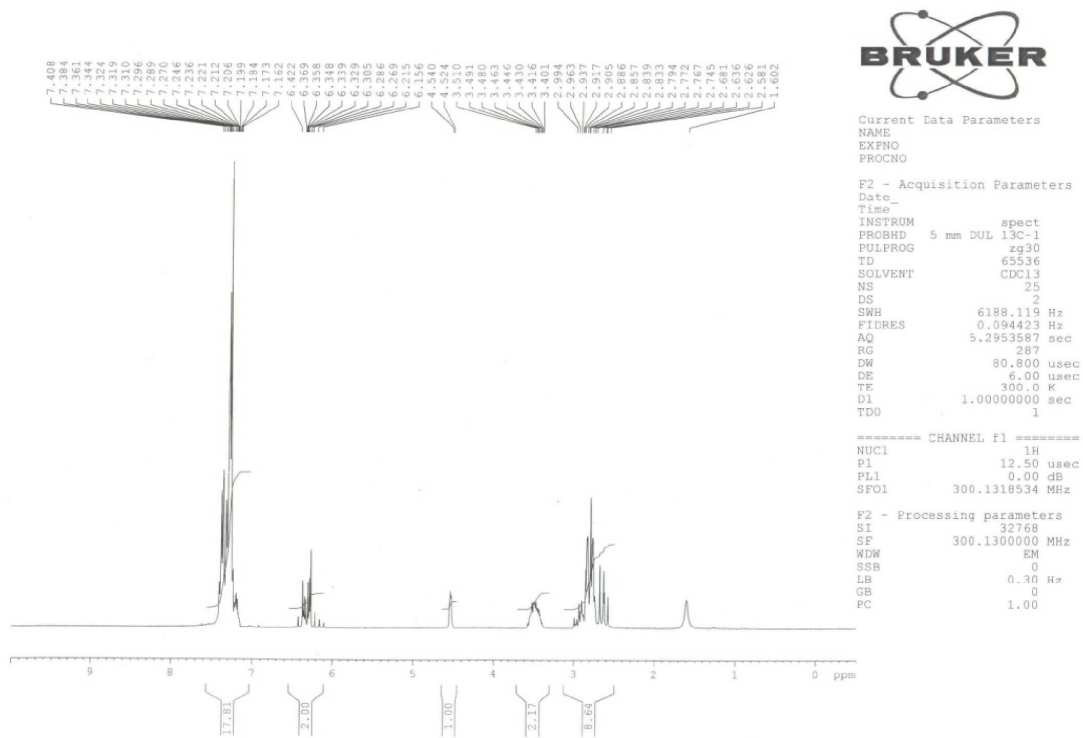


¹H spectrum of 9-(4-nitrostyryl)-3,4,6,7-Tetrahydro-3,3,6,6-tetramethyl-2H-xanthene-1,8(5H, 9H)-dione (10b)

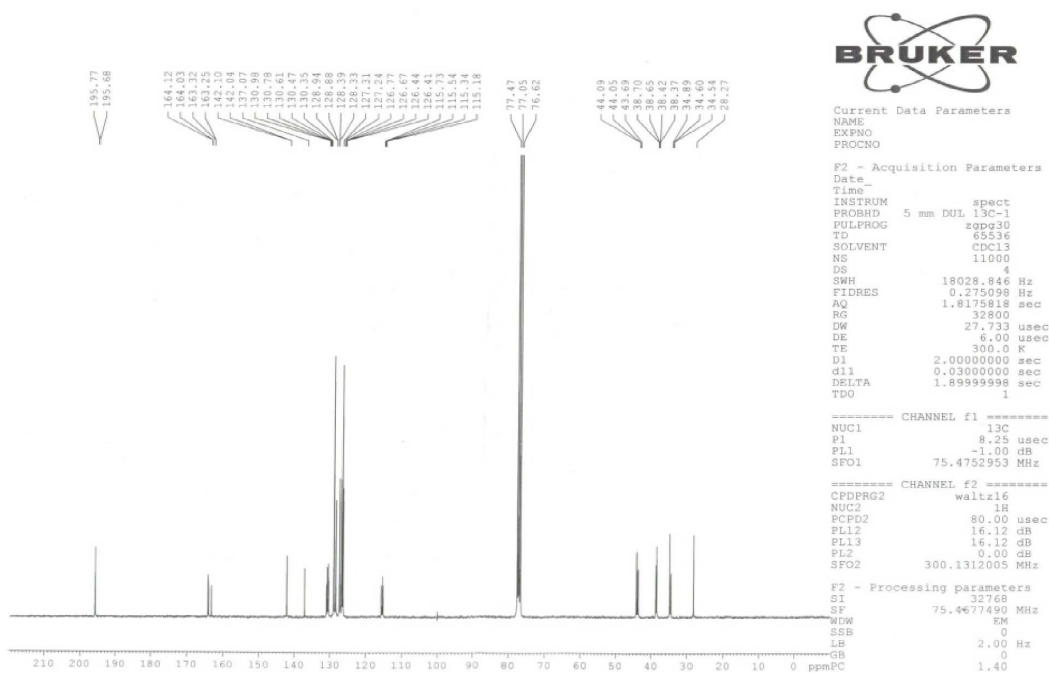
Print of window 80: MS Spectrum



Mass Spectrum of 9-(4-nitrostyryl)-3,4,6,7-Tetrahydro-3,3,6,6-tetramethyl-2H-xanthene-1,8(5H, 9H)-dione (10b)



¹H spectrum of 3,4,6,7-tetrahydro-3,6-diphenyl-9-styryl-2H-xanthene-1,8-(5H, 9H)-dione (11c)



¹³C Spectrum of 3,4,6,7-tetrahydro-3,6-diphenyl-9-styryl-2H-xanthene-1,8-(5H, 9H)-dione (11c)