Supplementary Material

Diels-Alder reactions with 1,1-Diethoxybut-3-yn-2-one and some 1,1-diethoxy-5-hydroxyalk-3-yn-2-ones and their acetates

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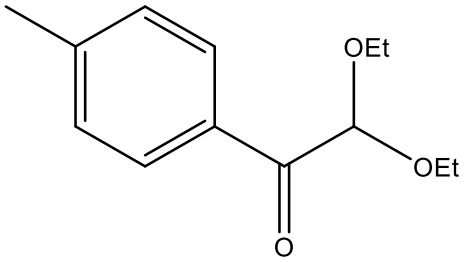
Flash-column chromatography gradient elution

Flash-column chromatography (FC) was performed using a Reveleris X" Flash System Silica Gel from Fluka Analytical (230–400 mesh) and eluting with a gradient of ethyl acetate in a mixture of hexanes for in total 16.5 min. The gradient applied can be summarized as follows:

Time span per mixture (min)	Ethyl acetate (% v/v) in hexanes
0.0 – 1.5	0
1.5 – 2.5	1
2.5 – 4.0	2
4.0 – 9.5	3
9.5 – 16.5	10

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2,2-Diethoxy-1-(4-tolyl)ethanone (**3a**)



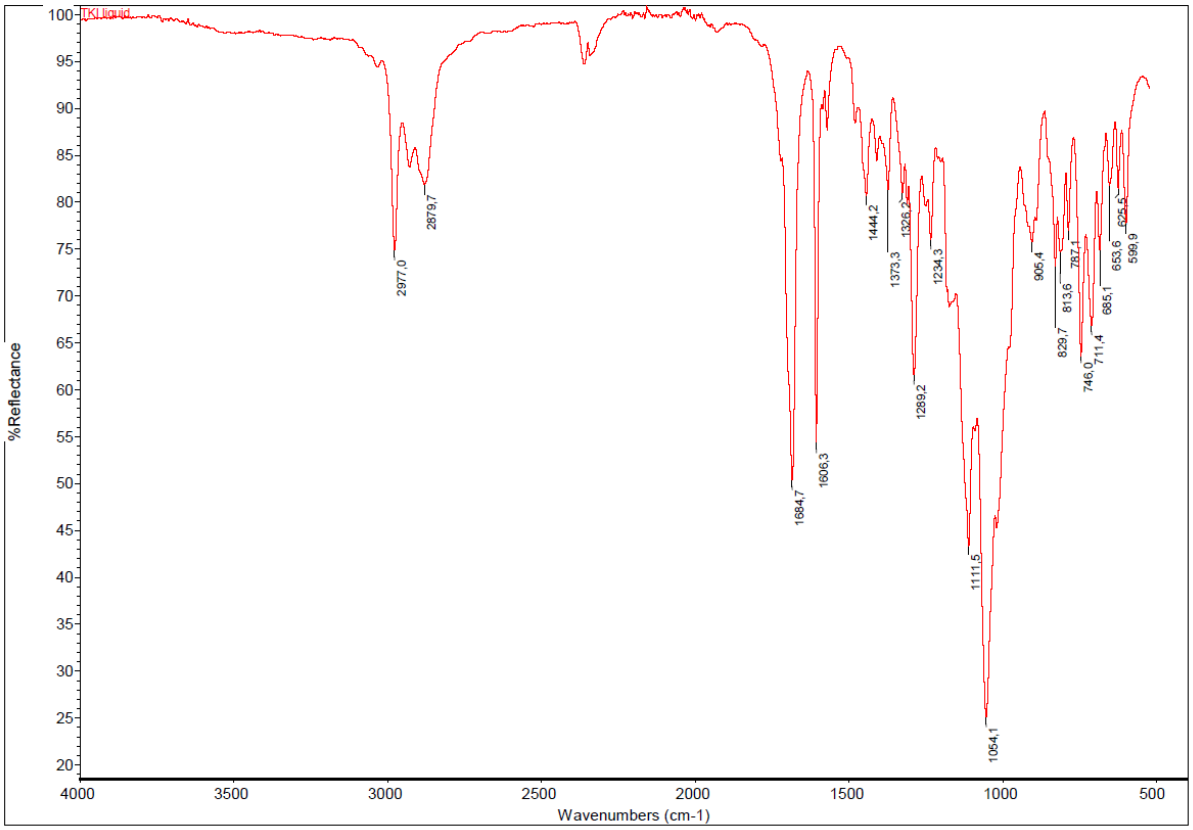


Figure 1. IR spectrum of 2,2-diethoxy-1-(4-tolyl)ethanone

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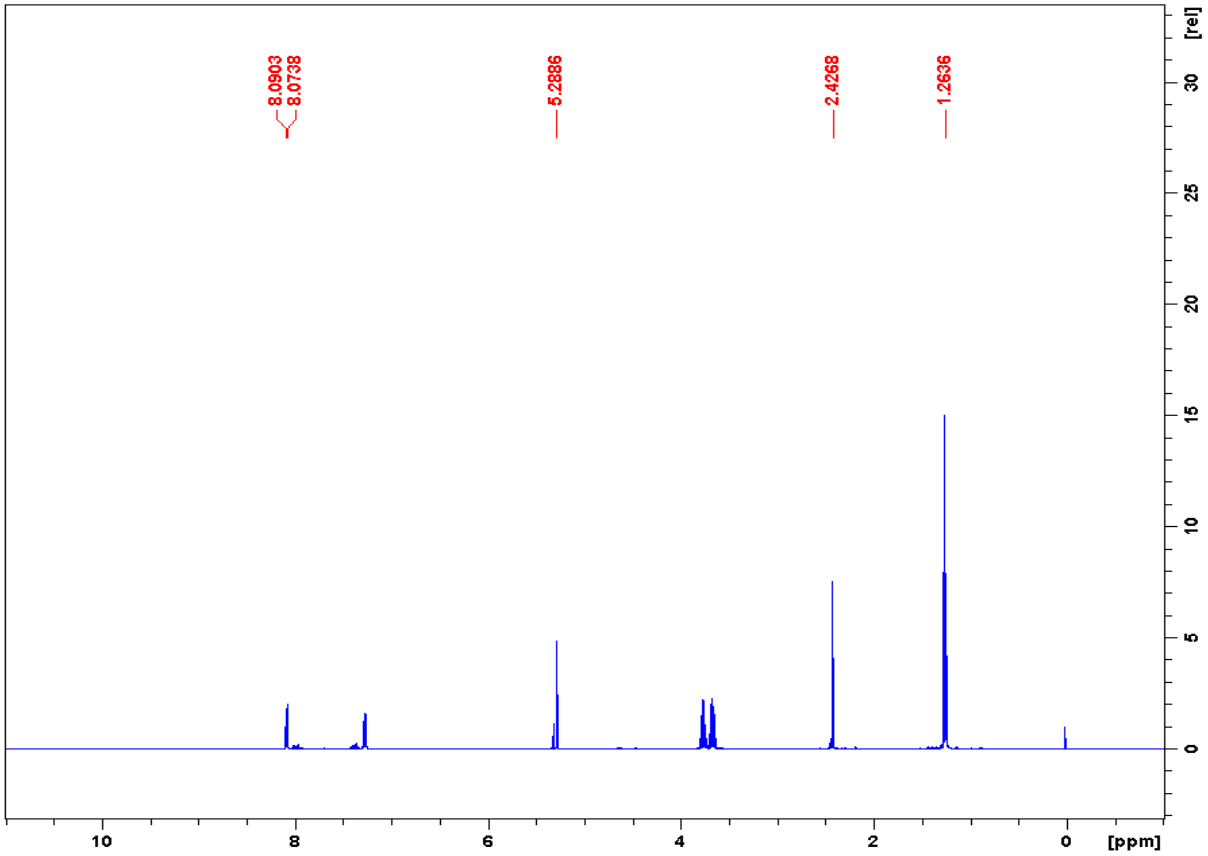


Figure 2: ^{1}H-NMR spectrum of 2,2-diethoxy-1-(4-tolyl)ethanone

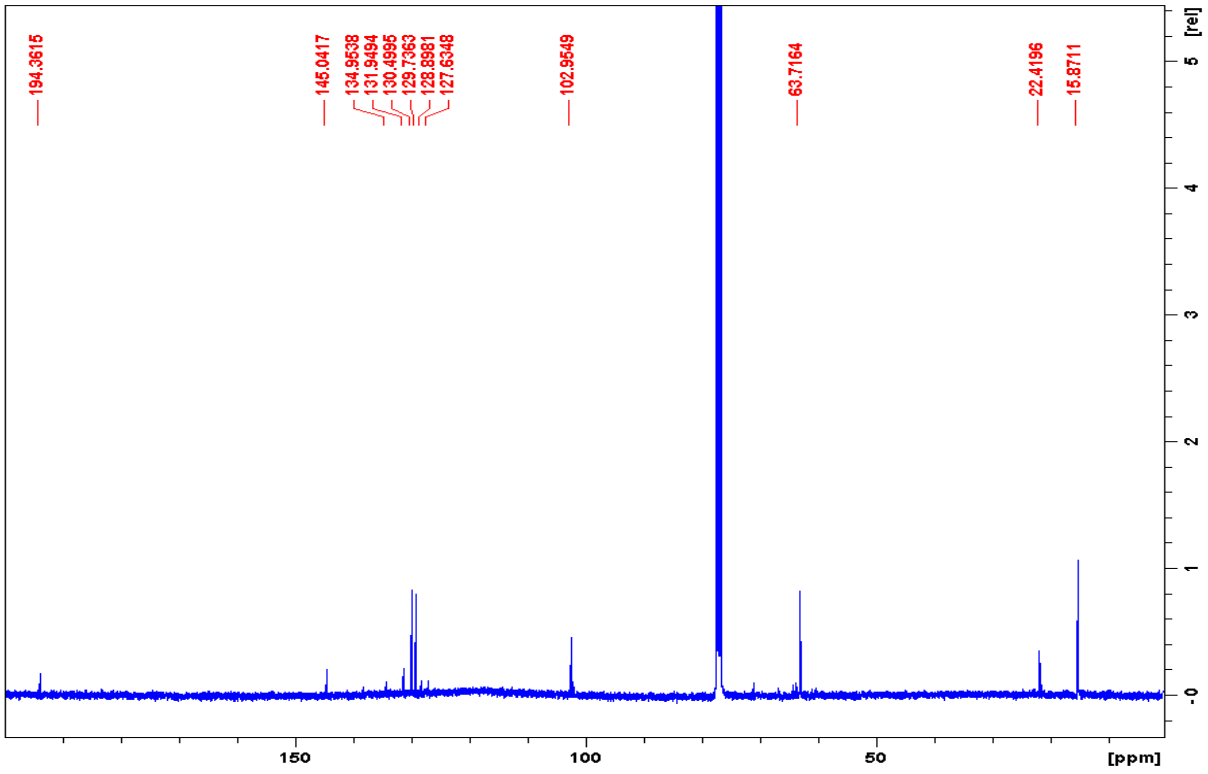
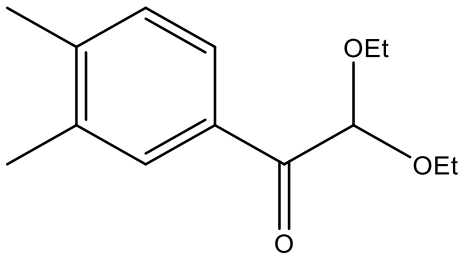


Figure 3 ^{13}C-NMR spectrum of 2,2-diethoxy-1-(4-tolyl)ethanone

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2,2-Diethoxy-1-(3,4-dimethylphenyl)ethanone (**3b**)



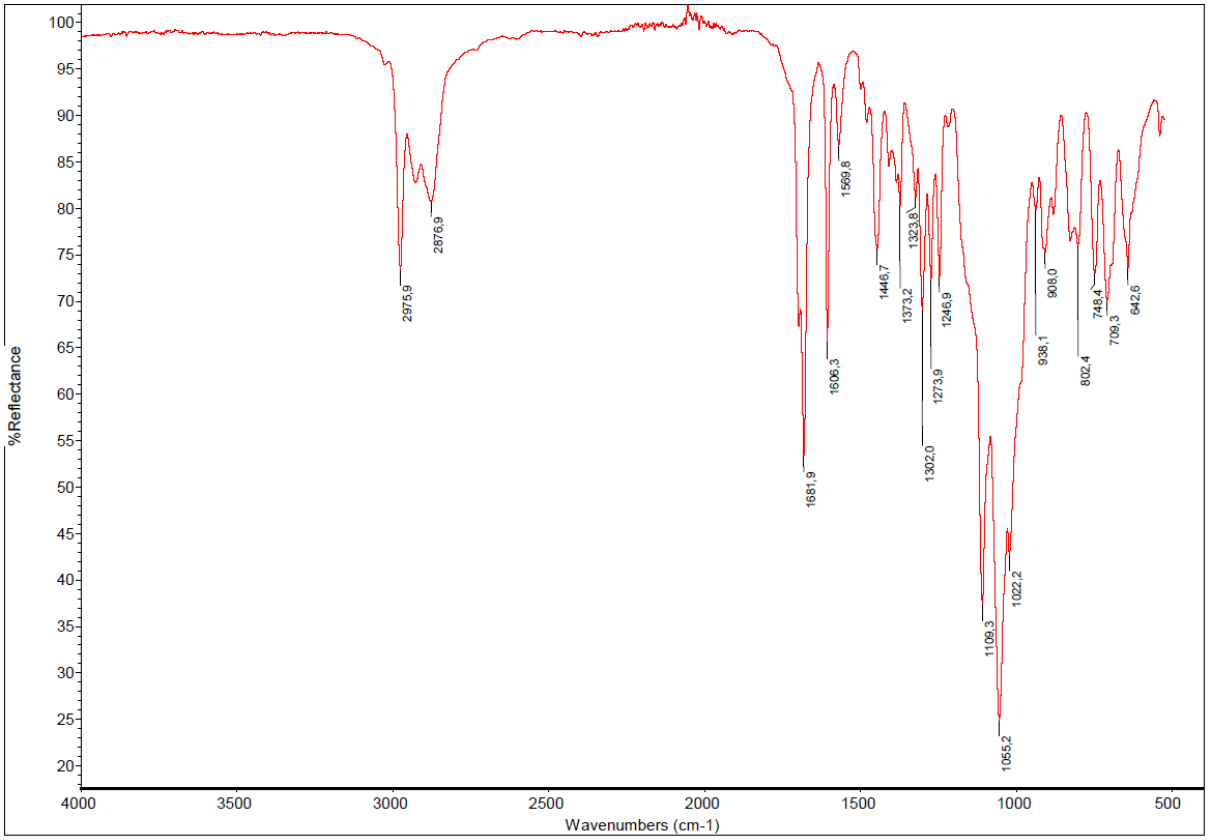


Figure 4 IR spectrum of 2,2-diethoxy-1-(3,4-dimethylphenyl)ethanone

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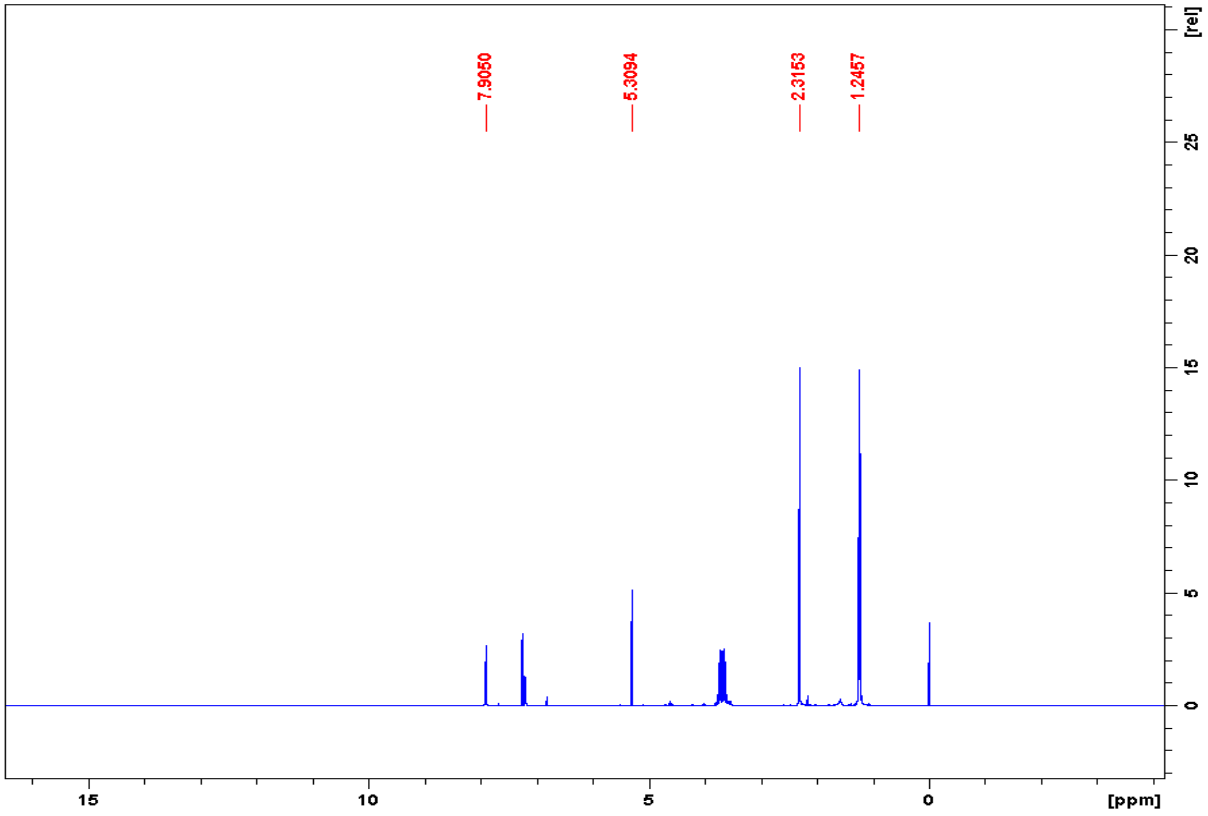


Figure 5 ^{1}H-NMR spectrum of 2,2-diethoxy-1-(3,4-dimethylphenyl)ethanone

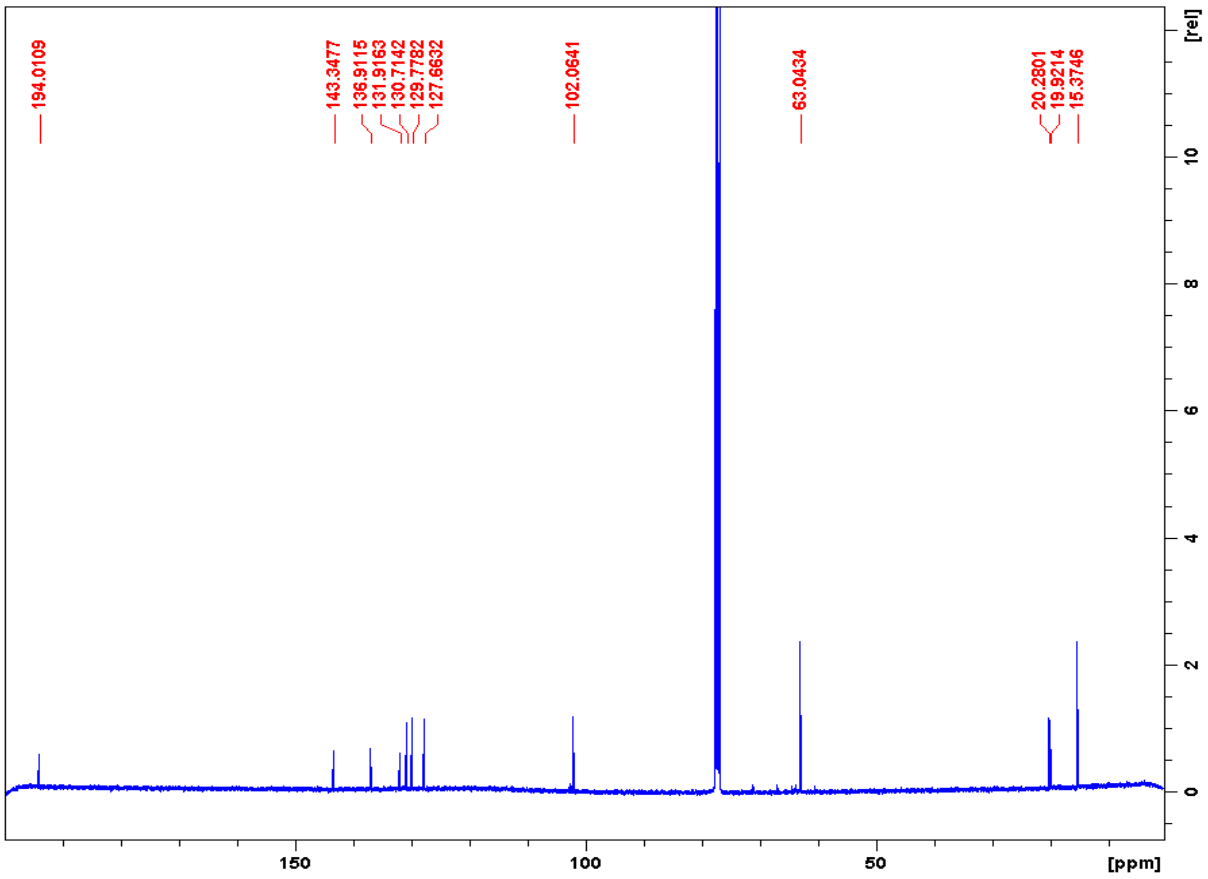
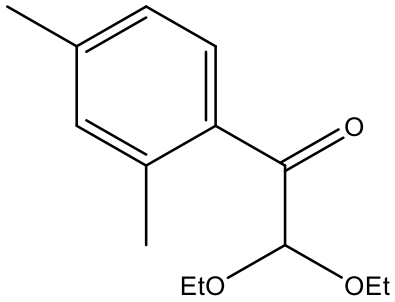


Figure 6 ^{13}C-NMR spectrum of 2,2-diethoxy-1-(3,4-dimethylphenyl)ethanone

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2,2-Diethoxy-1-(2,4-dimethylphenyl)ethanone (**3c**)



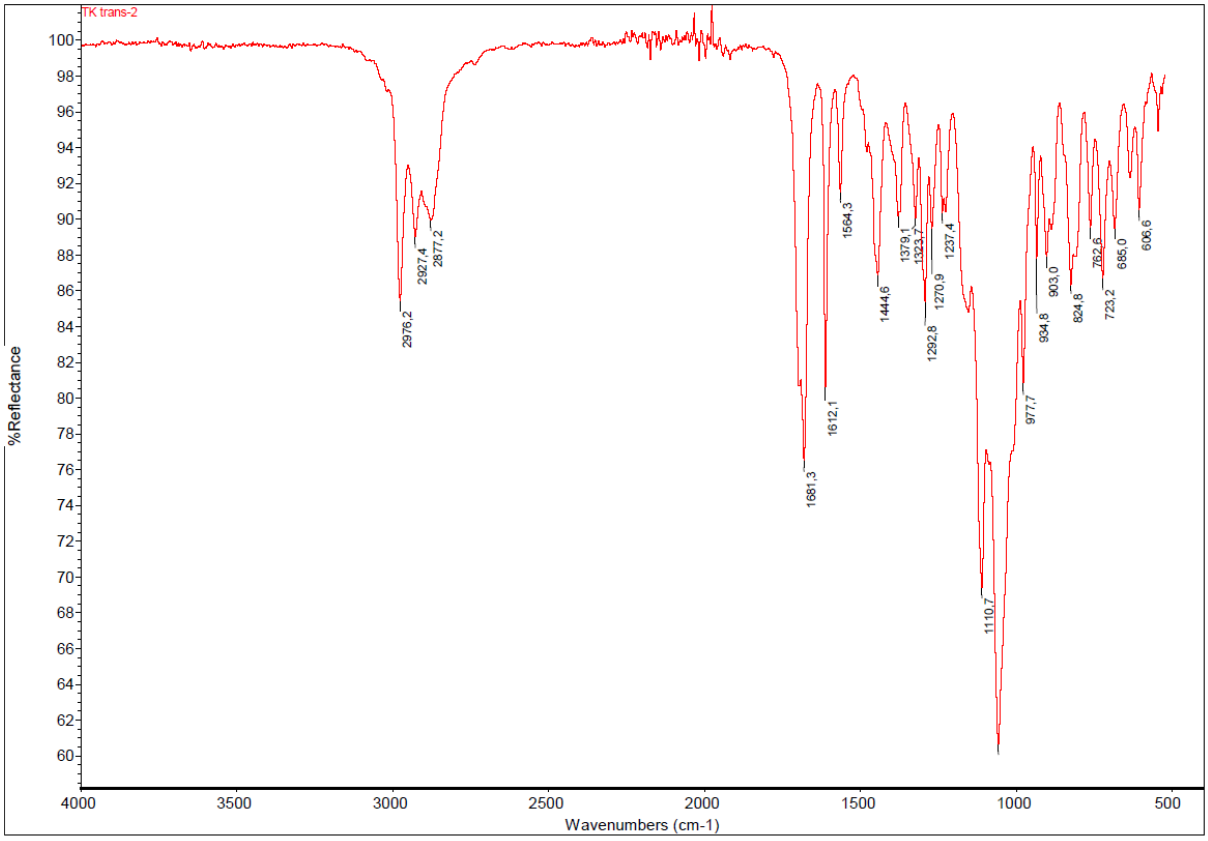


Figure 7 IR spectrum of 2,2-diethoxy-1-(2,4-dimethylphenyl)ethanone

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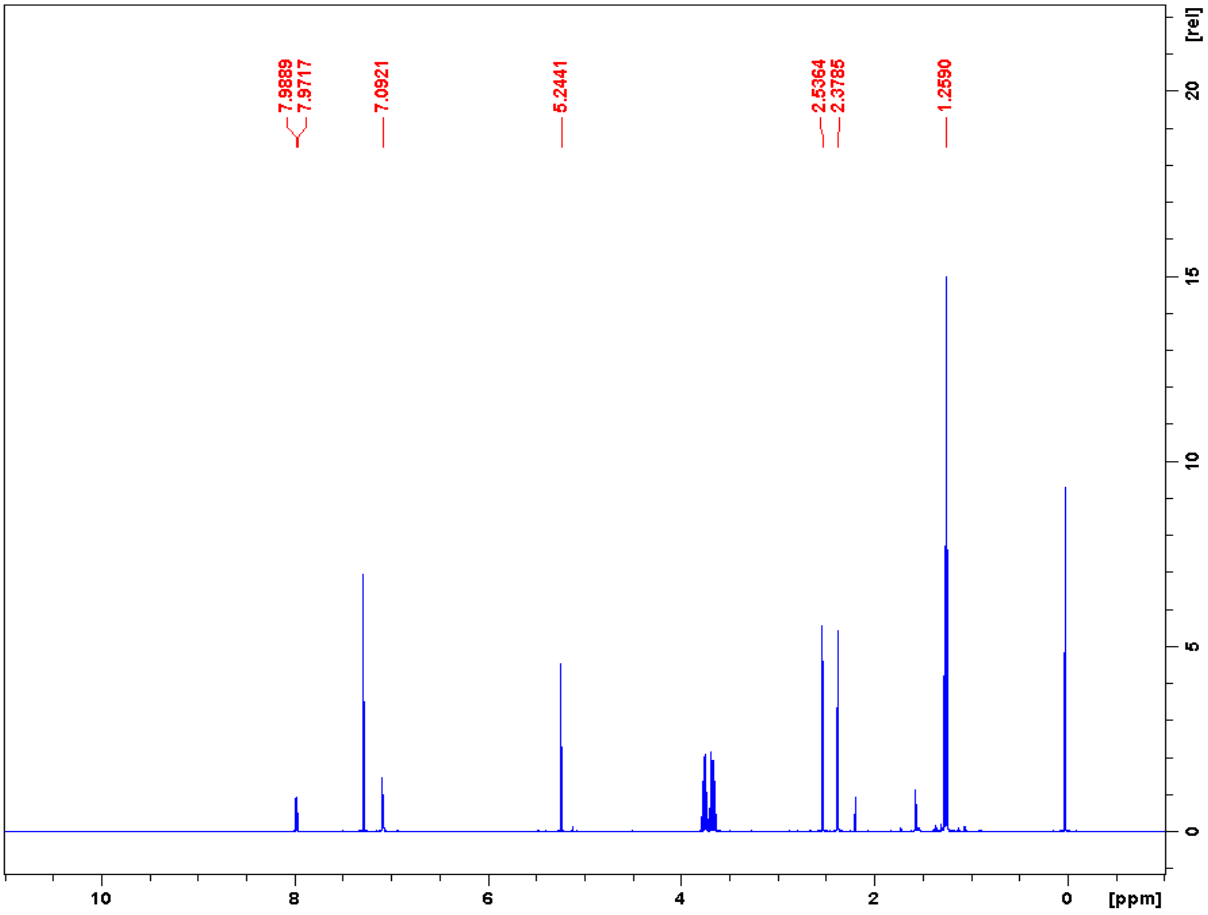


Figure 8 ^{1}H-NMR spectrum of 2,2-diethoxy-1-(2,4-dimethylphenyl)ethanone

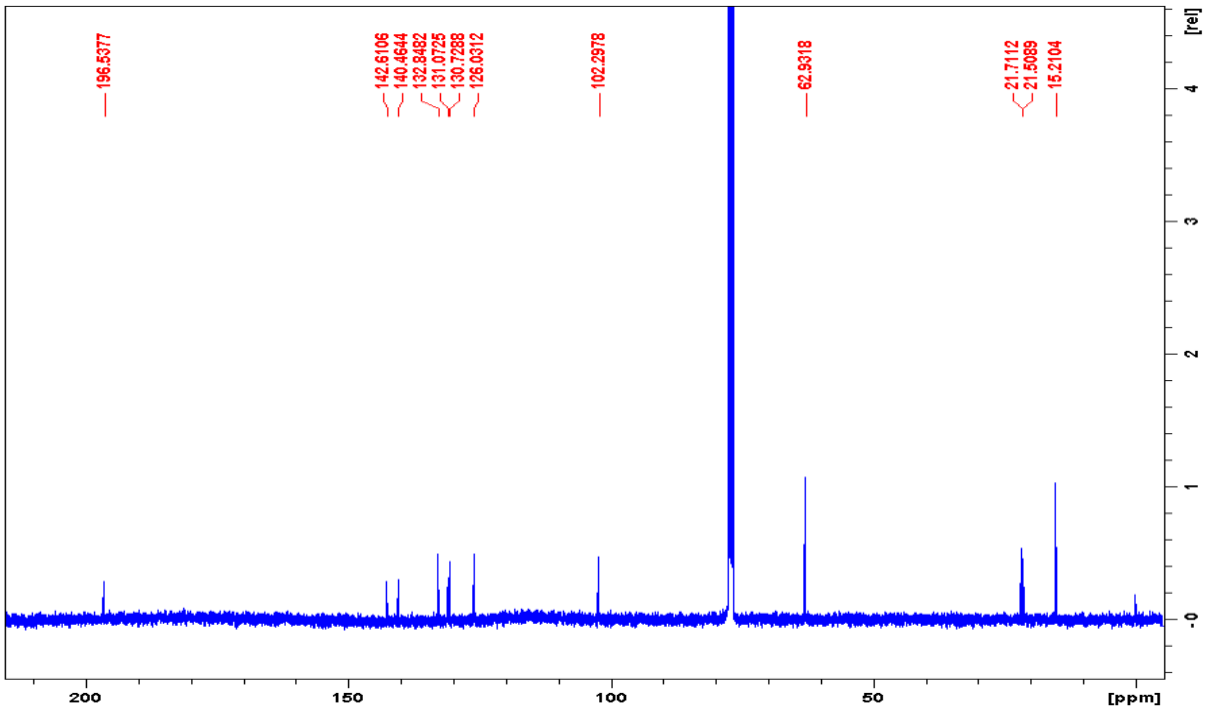
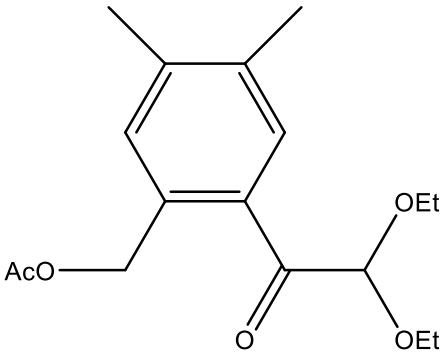


Figure 9 ^{13}C-NMR spectrum of 2,2-diethoxy-1-(2,4-dimethylphenyl)ethanone

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(2-Diethoxyacetyl-4,5-dimethylphenyl)methyl acetate (**7a**)



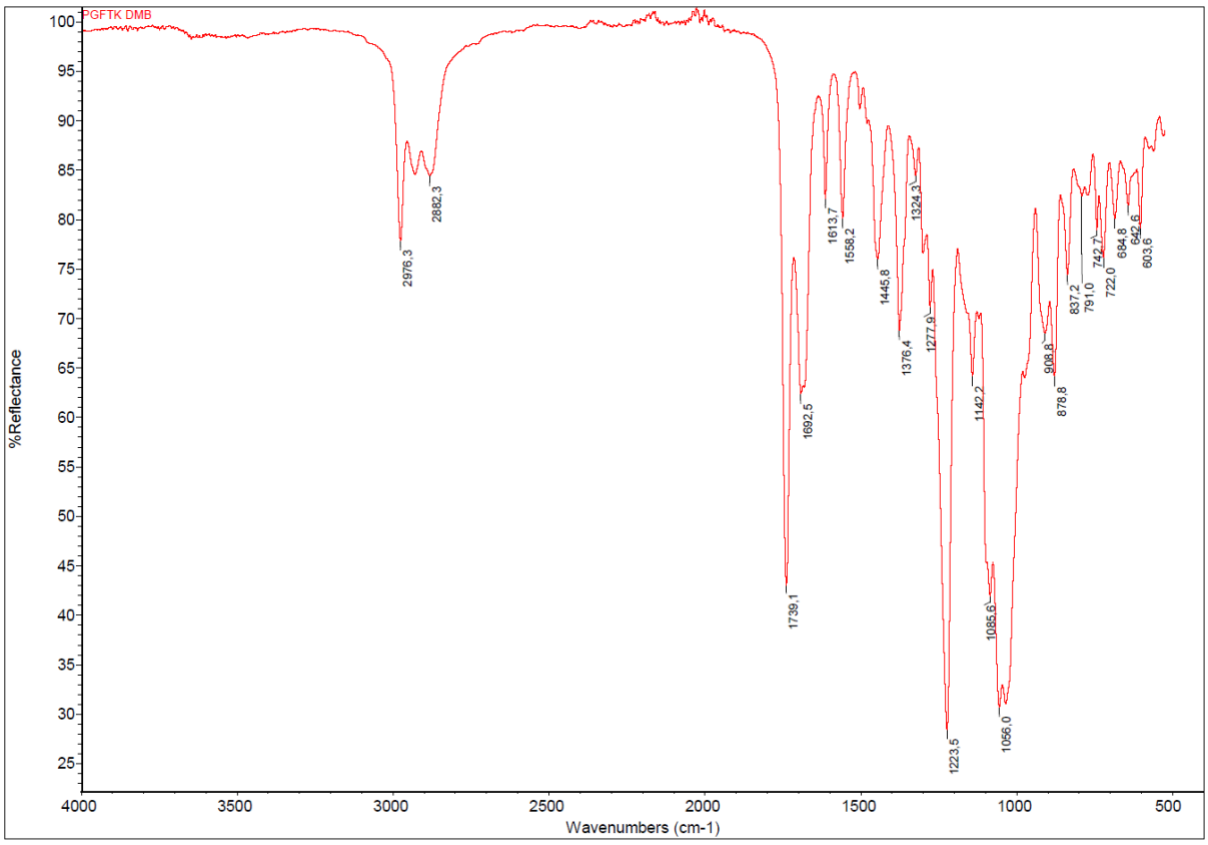


Figure 10 IR spectrum of (2-diethoxyacetyl-4,5-dimethylphenyl)methyl acetate

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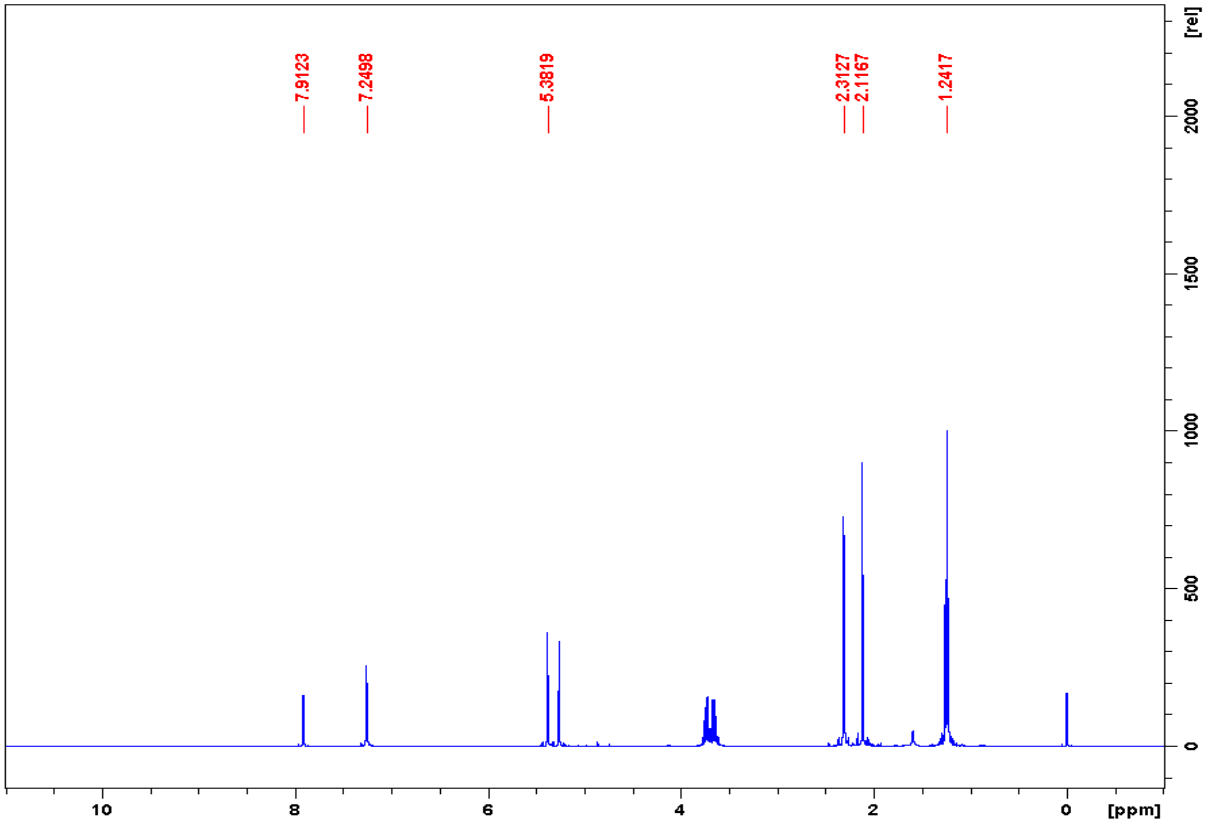


Figure 11 ^{1}H-NMR spectrum of (2-diethoxyacetyl-4,5-dimethylphenyl)methyl acetate

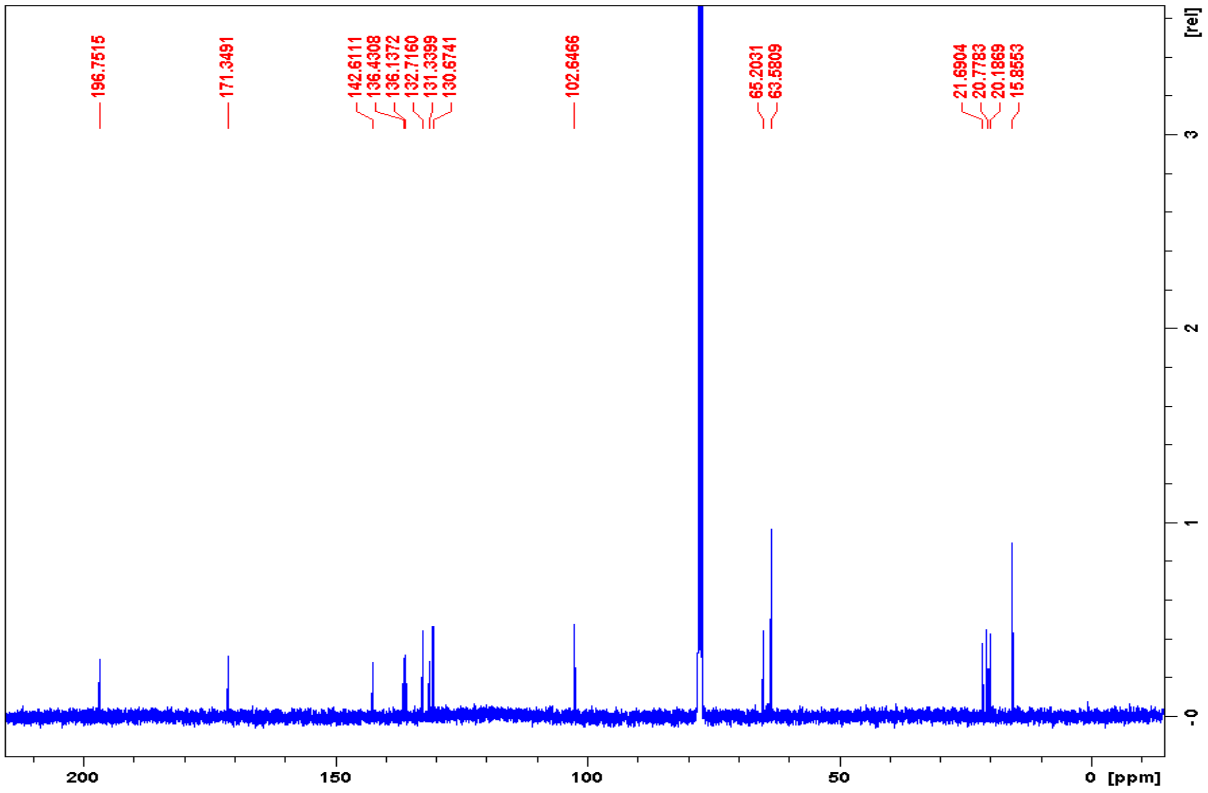
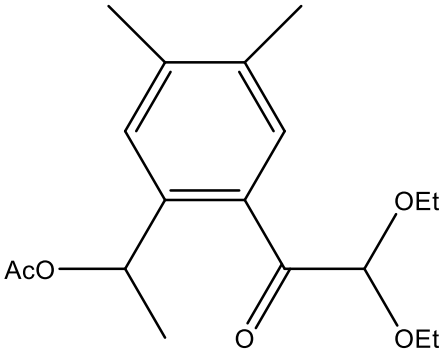


Figure 12 ^{13}C-NMR of (2-diethoxyacetyl-4,5-dimethylphenyl)methyl acetate

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1-(2-Diethoxyacetyl-4,5-dimethylphenyl)ethyl acetate (**7b**)



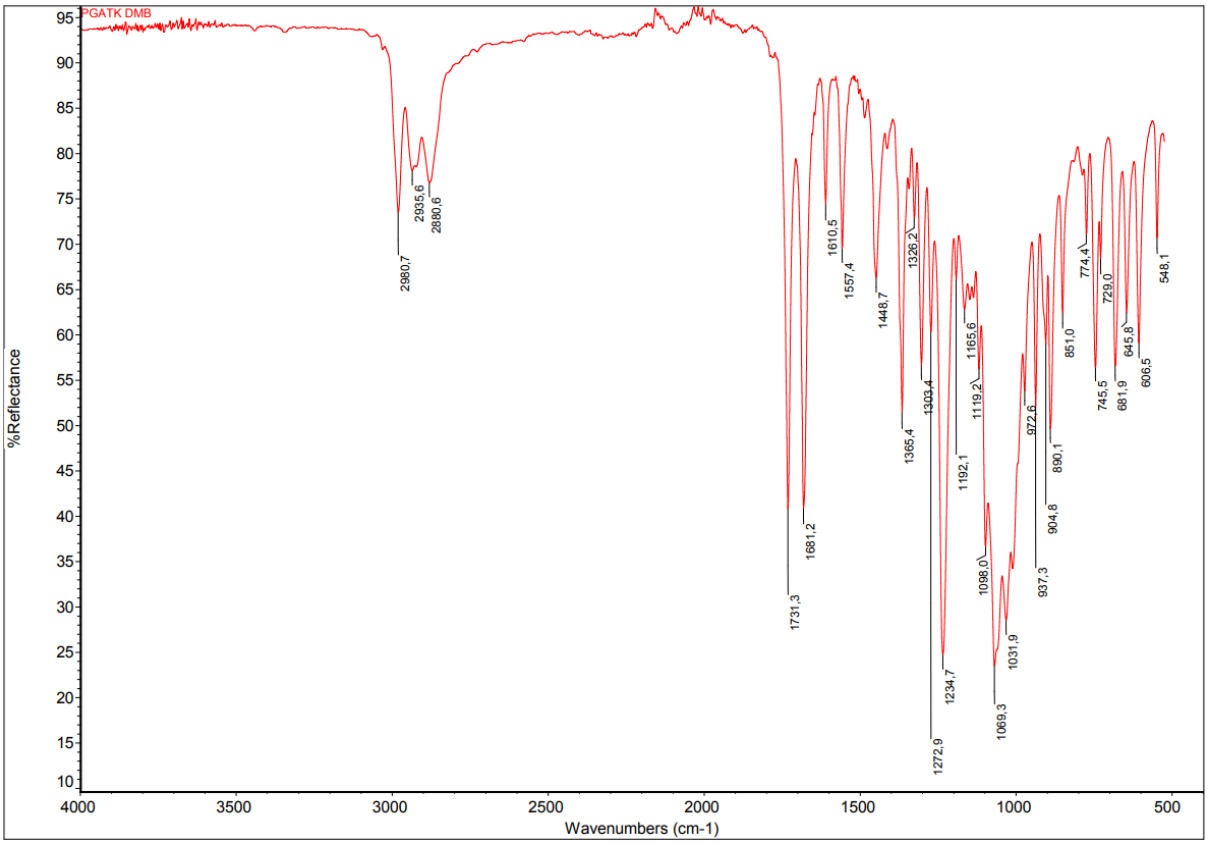


Figure 13 IR spectrum of 1-(2-diethoxyacetyl-4,5-dimethylphenyl)ethyl acetate

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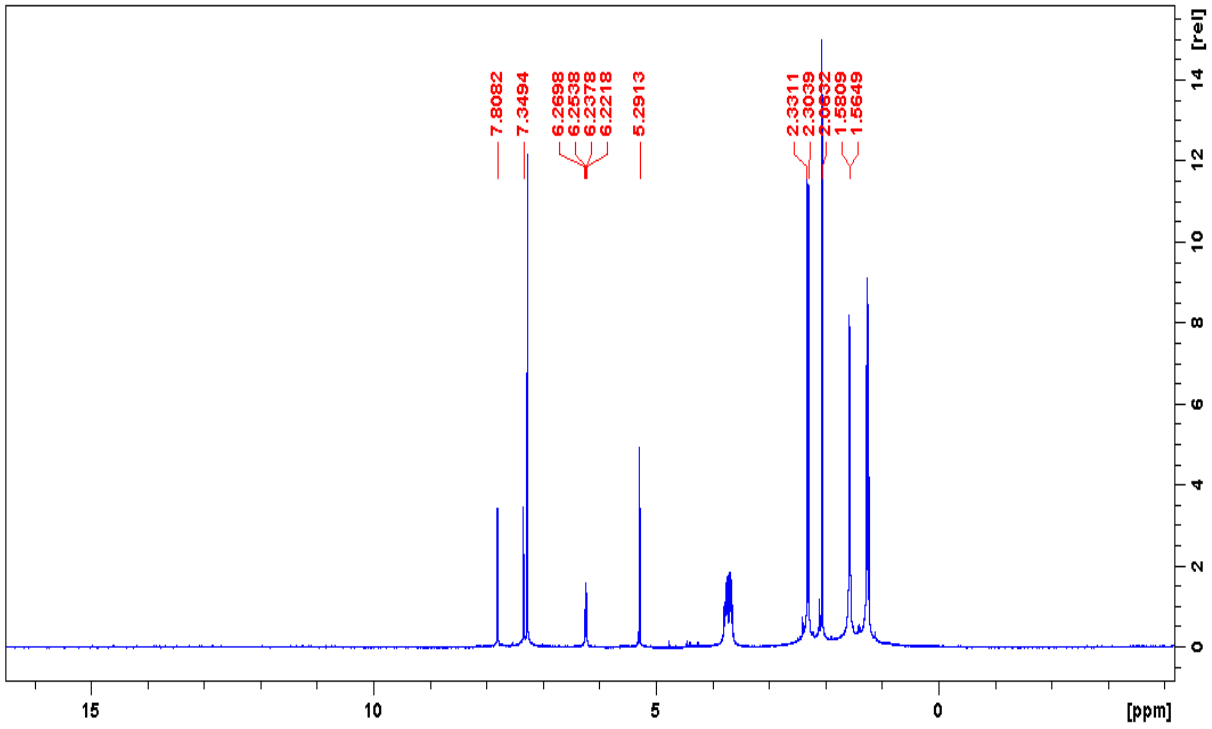


Figure 14 ^{1}H-NMR spectrum of 1-(2-diethoxyacetyl-4,5-dimethylphenyl)ethyl acetate

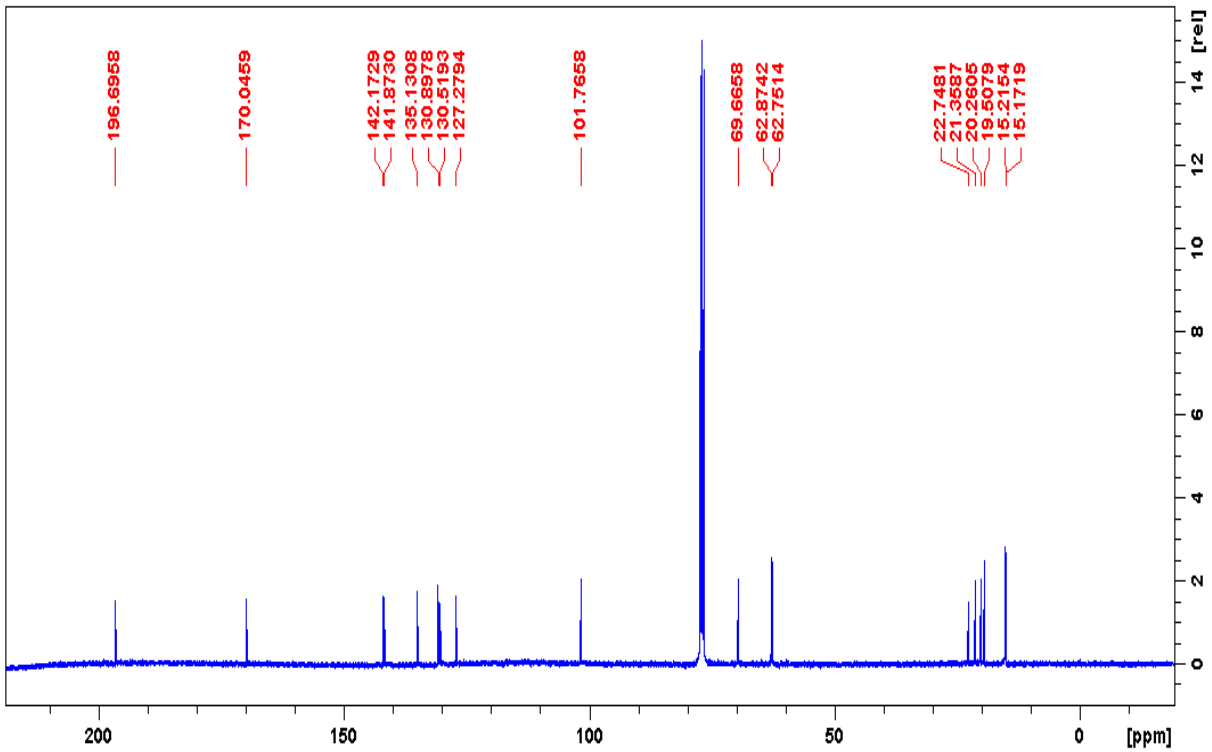
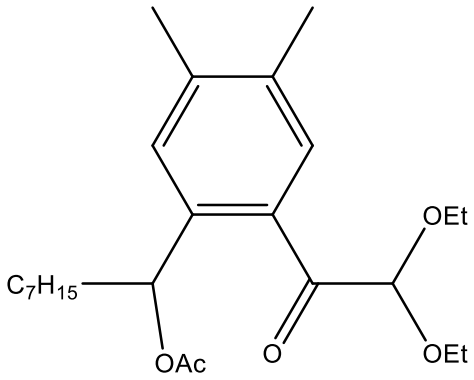


Figure 15 ^{13}C-NMR spectrum of 1-(2-diethoxyacetyl-4,5-dimethylphenyl)ethyl acetate

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1-(2-Diethoxyacetyl-4,5-dimethylphenyl)octyl acetate (**7c**)



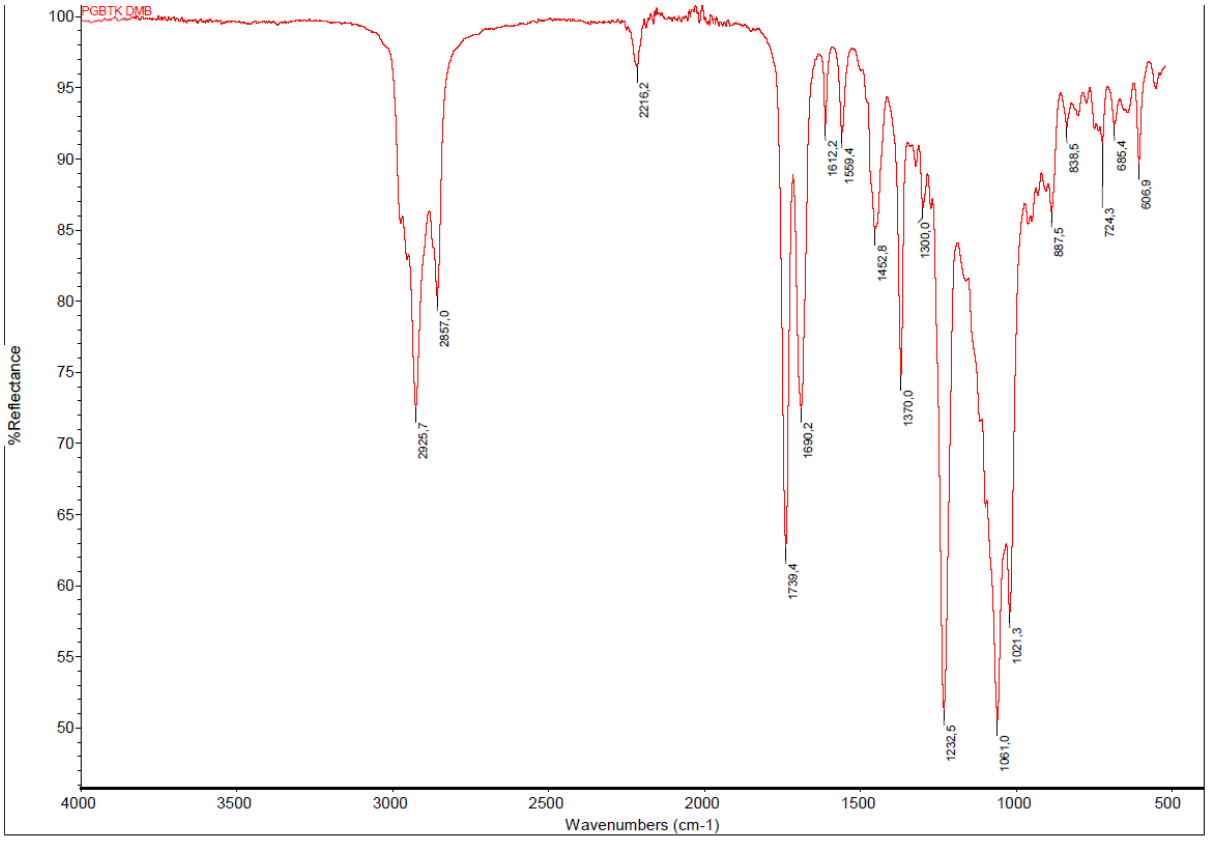


Figure 16 IR spectrum of 1-(2-diethoxyacetyl-4,5-dimethylphenyl)octyl acetate

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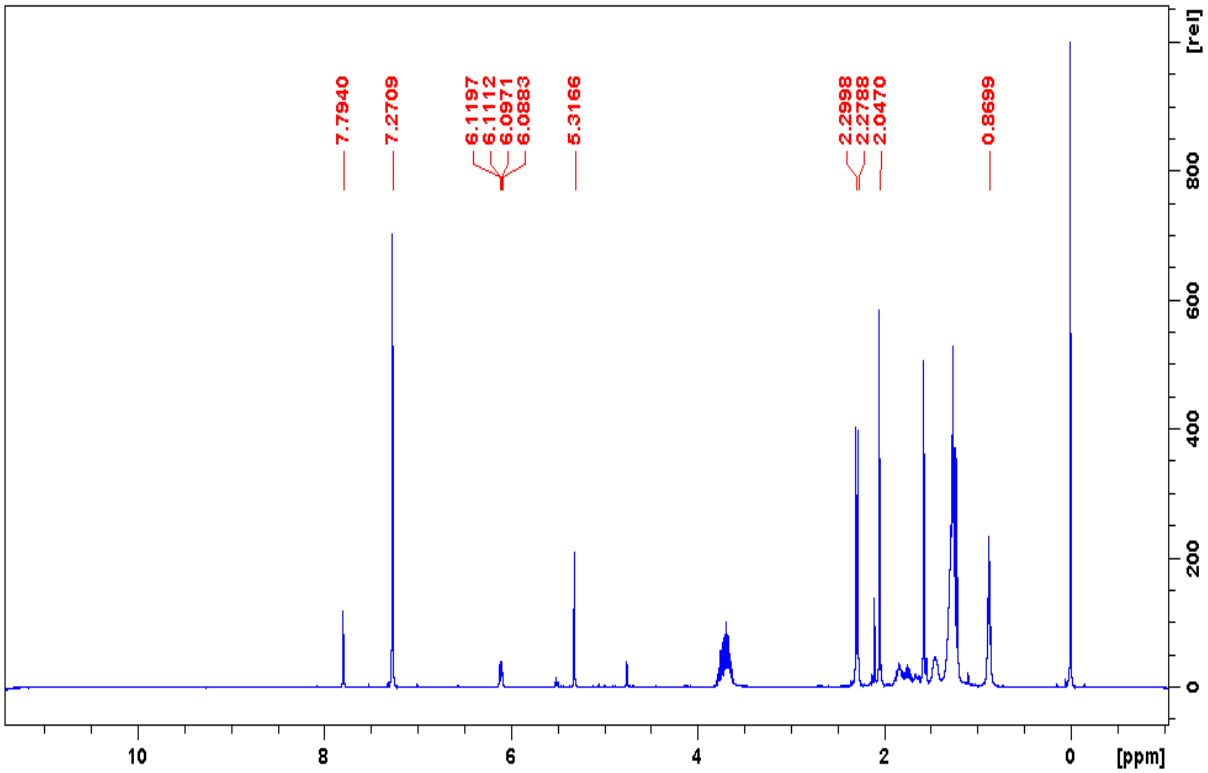


Figure 17 ^{1}H-NMR spectrum of 1-(2-diethoxyacetyl-4,5-dimethylphenyl)octyl acetate

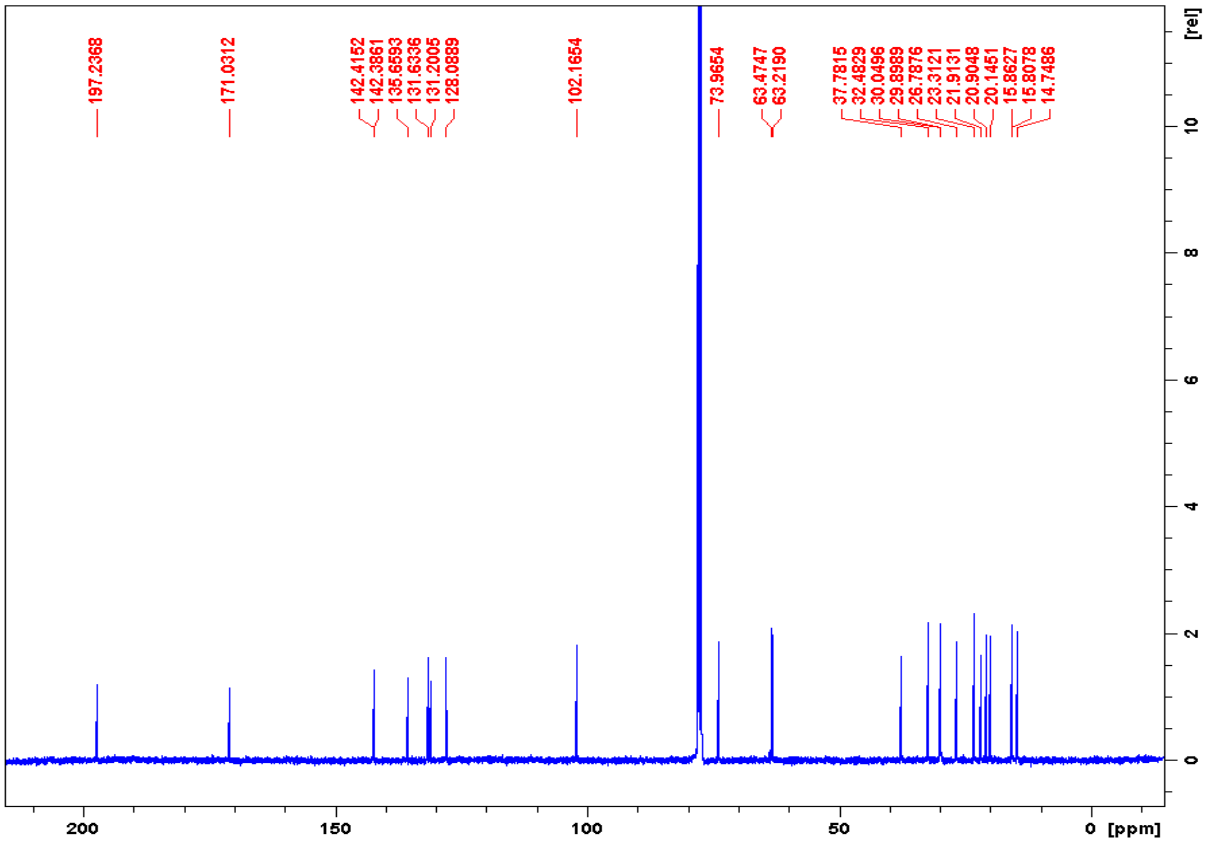
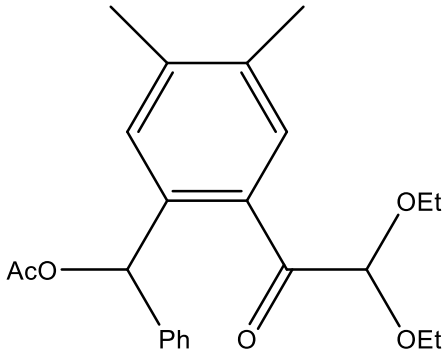


Figure 18 ^{13}C-NMR spectrum of 1-(2-diethoxyacetyl-4,5-dimethylphenyl)octyl acetate

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(2-Diethoxyacetyl-4,5-dimethylphenyl)(phenyl)methyl acetate (**7d**)



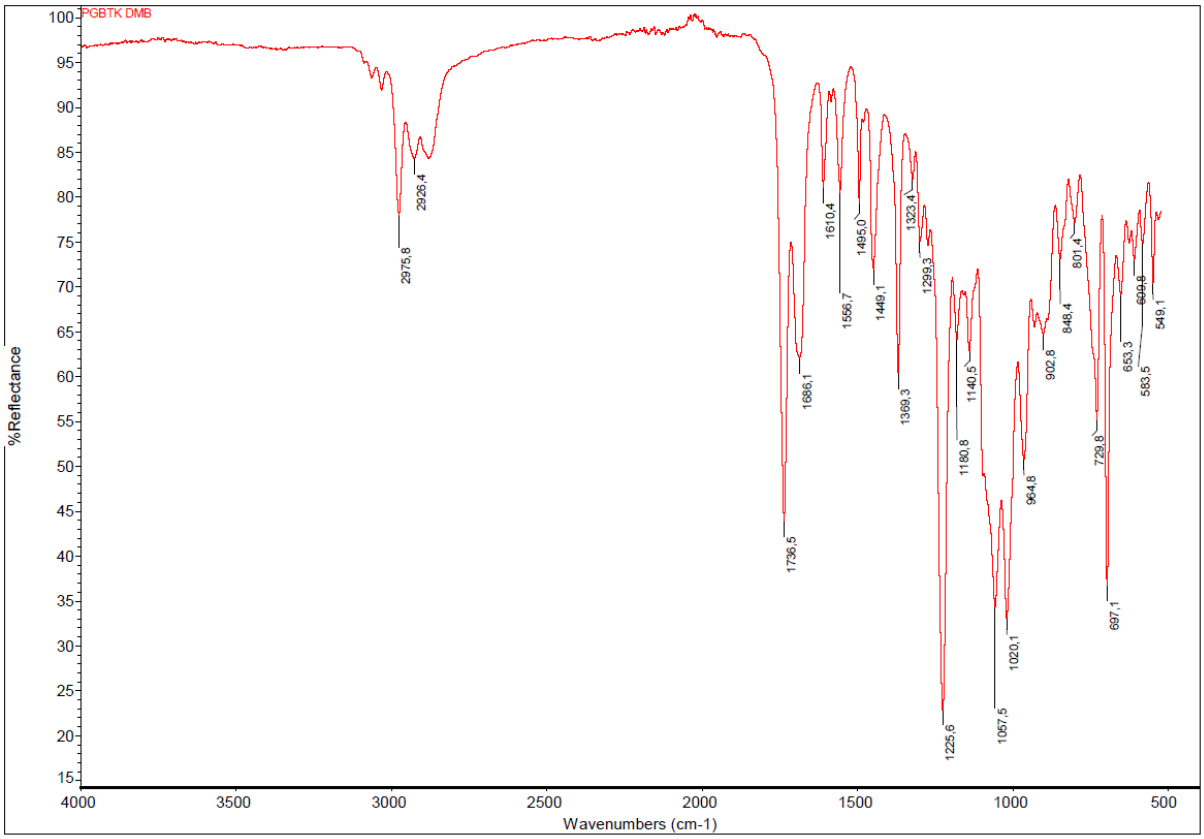


Figure 19 IR spectrum of (2-diethoxyacetyl-4,5-dimethylphenyl)(phenyl)methyl acetate

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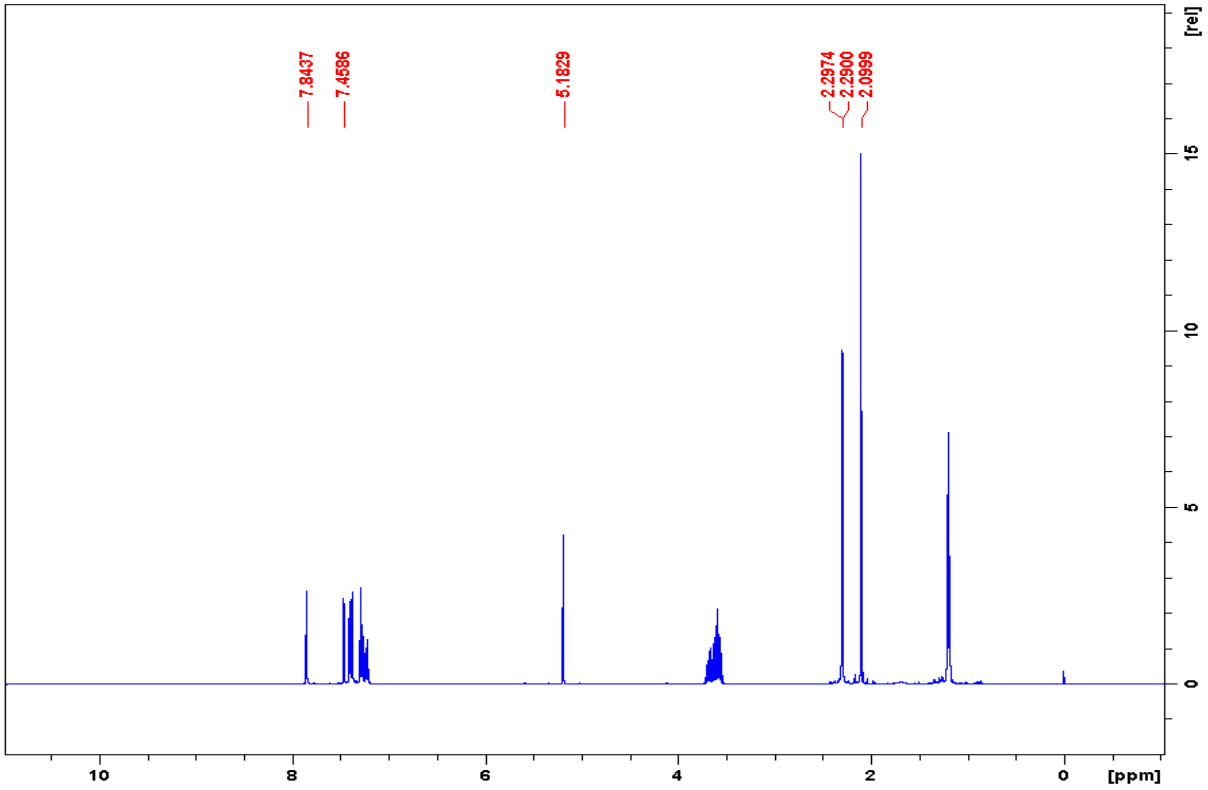


Figure 20 ^{1}H-spectrum of (2-diethoxyacetyl-4,5-dimethylphenyl)(phenyl)methyl acetate

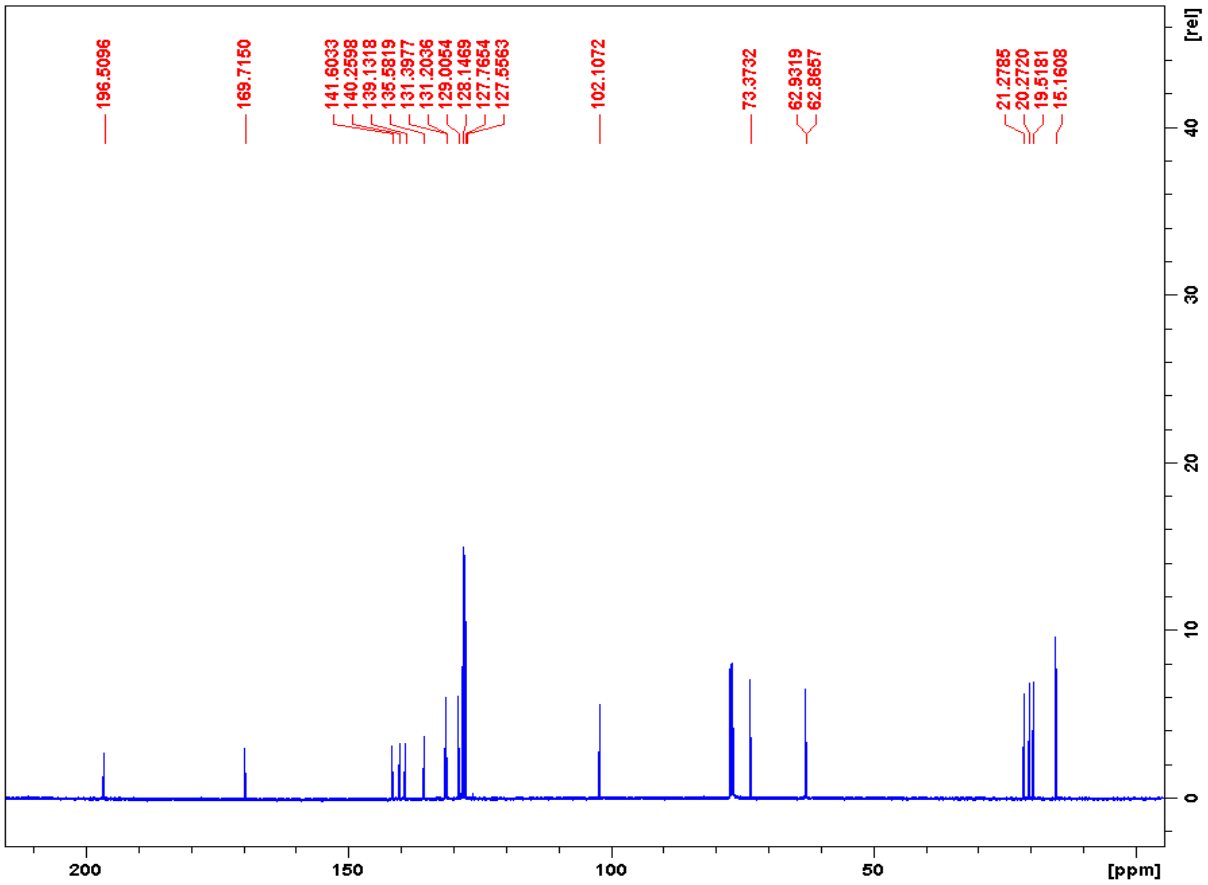


Figure 21 ^{13}C-spectrum of (2-diethoxyacetyl-4,5-dimethylphenyl)(phenyl)methyl acetate

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