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FIG. 1A

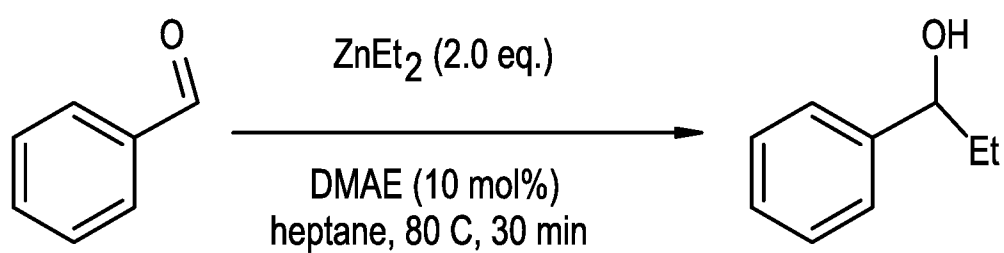


FIG. 1B

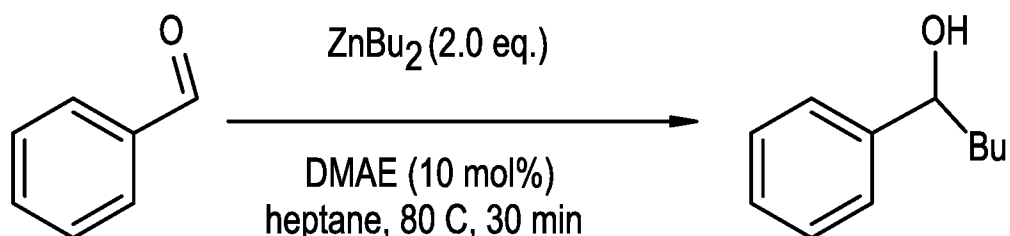
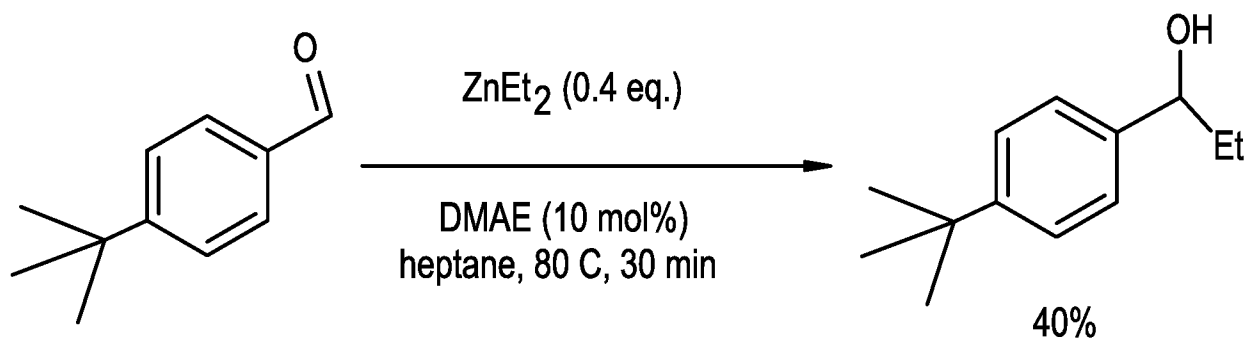
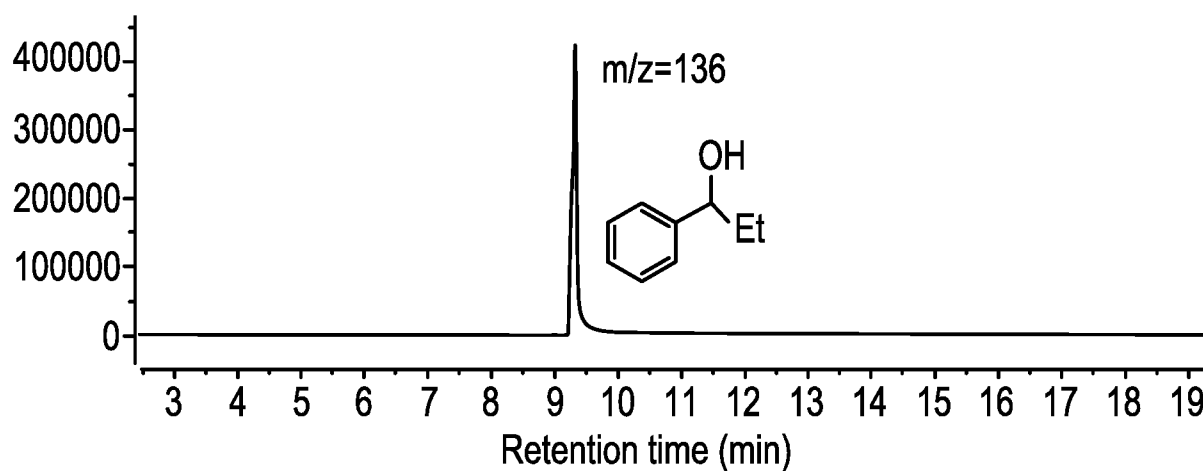
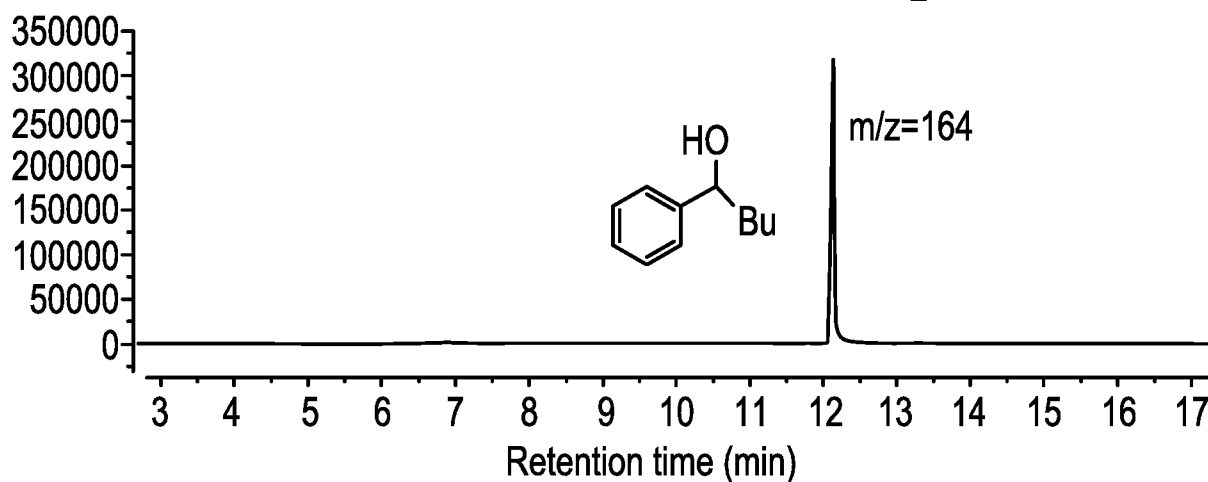


FIG. 1C



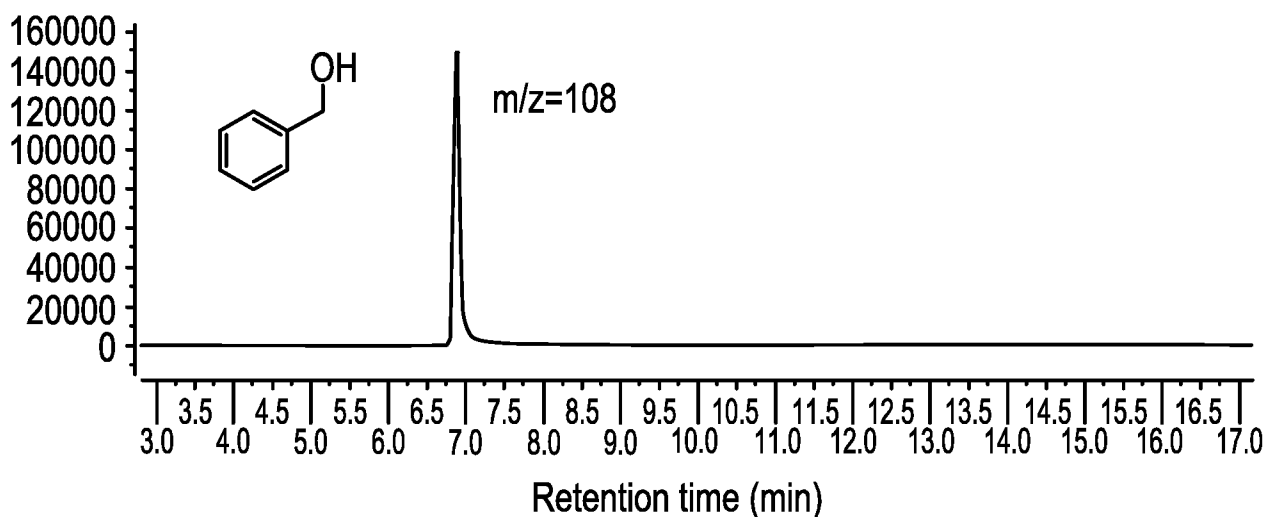
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FIG. 2GCMS of reaction products of benzaldehyde with ZnEt_2 at 1:2 molar ratio**FIG. 3**GCMS of reaction products of benzaldehyde with ZnBu_2 with 10 mol% DMAE

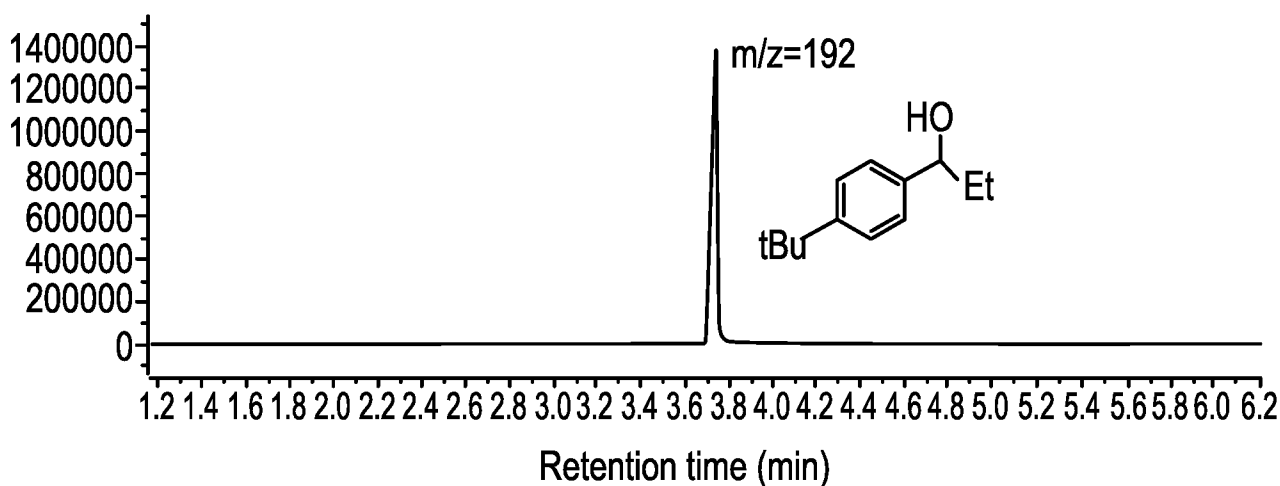
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FIG. 4

GCMS of reaction products of benzaldehyde with ZnBu_2 at 1:2 molar ratio
with no promoter

**FIG. 5**

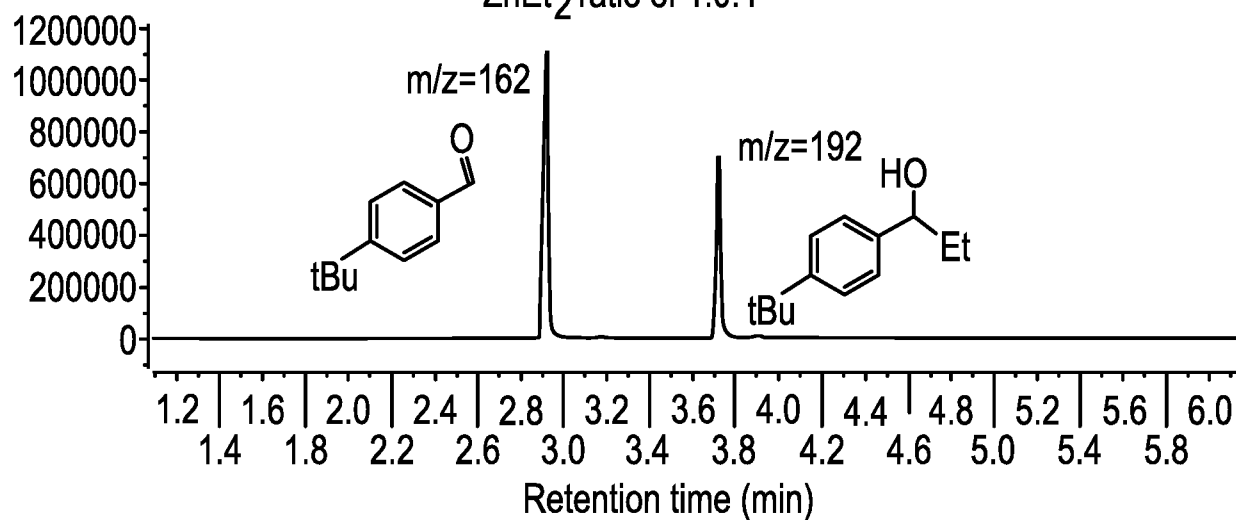
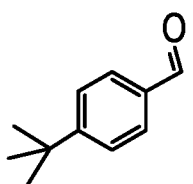
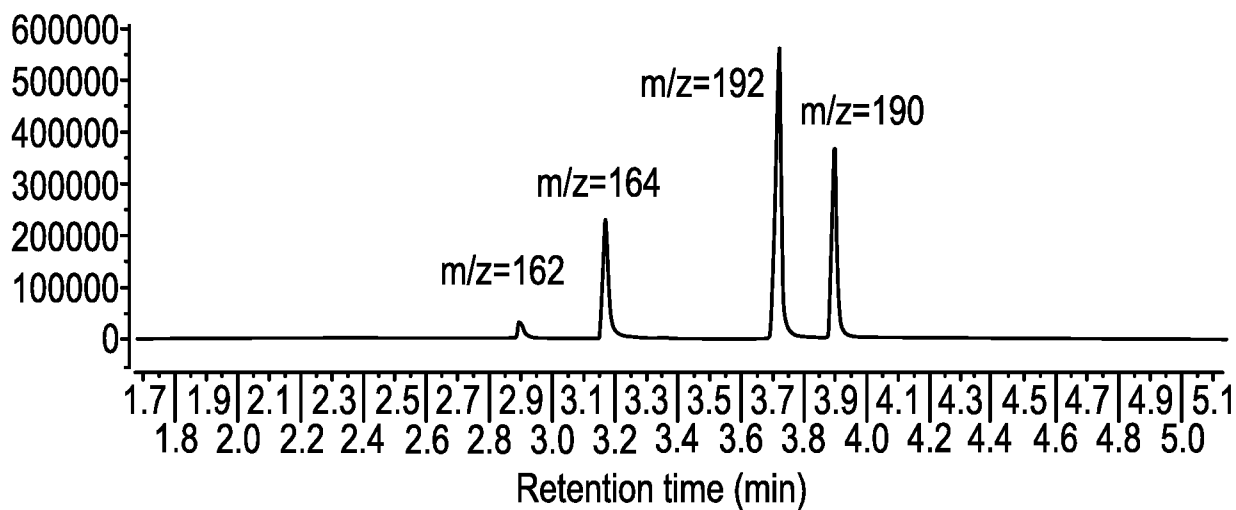
GCMS of reaction products of tBu-benzaldehyde with ZnEt_2 at tBu-benzaldehyde:
 ZnEt_2 ratio of 1:1.67



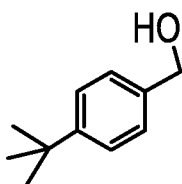
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FIG. 6

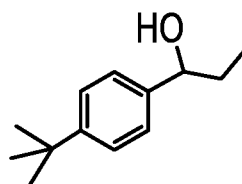
GCMS of reaction products of tBu-benzaldehyde with ZnEt₂ at a tBu-benzaldehyde:
ZnEt₂ ratio of 1:0.4

**FIG. 7**

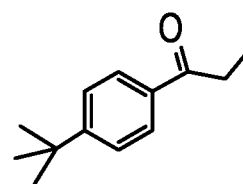
MW: 162.23
1



MW: 164.24
2



MW: 192.30
3

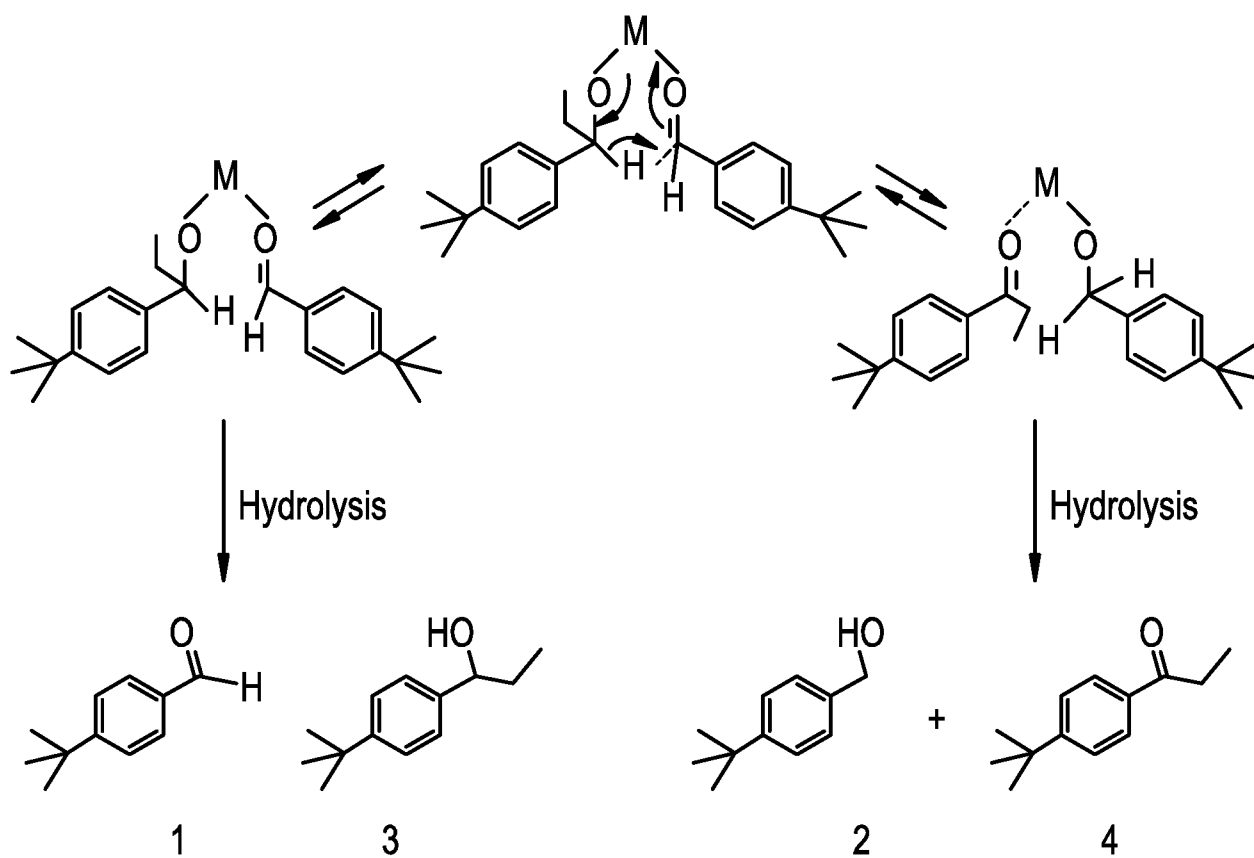


MW: 190.28
4

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FIG. 8

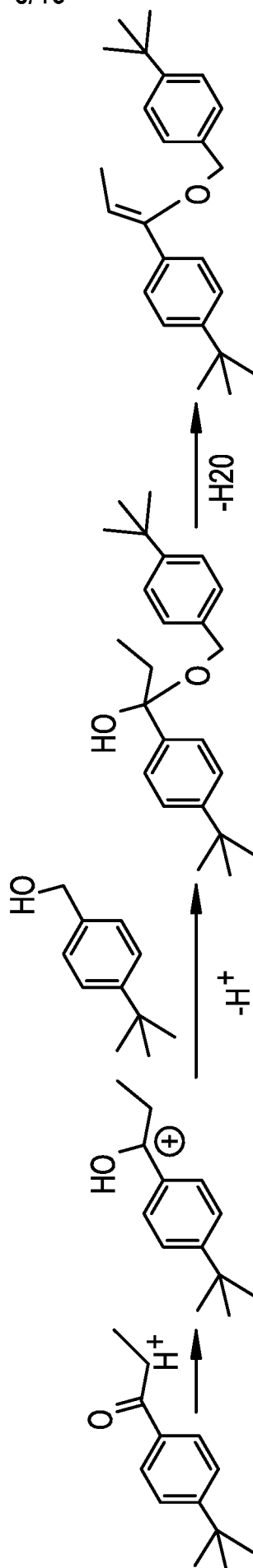
Possible pathway to form compounds 2 and 4 via MPV reduction



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FIG. 9

Possible pathway to form compound 5

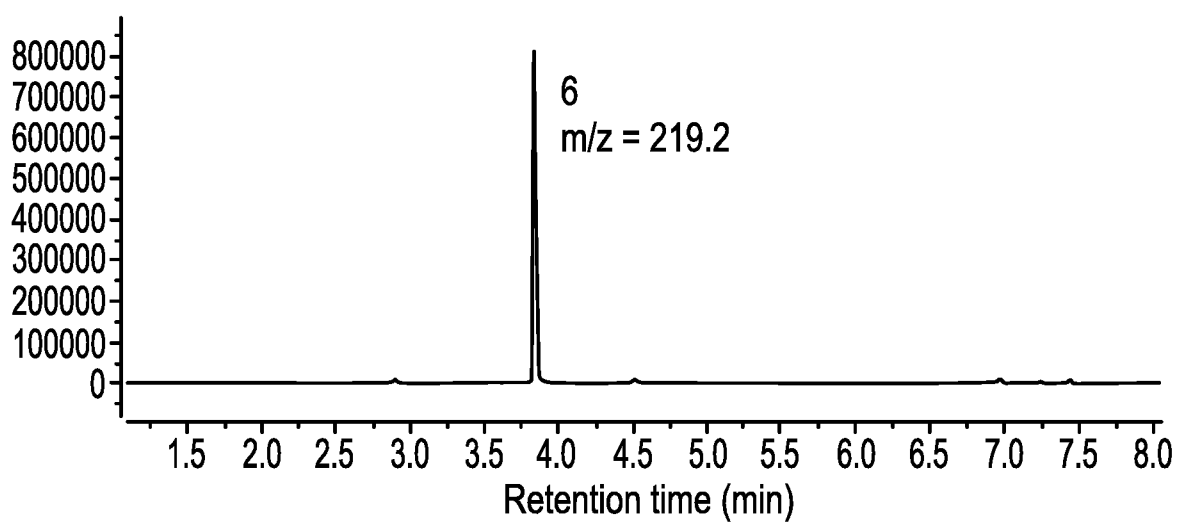


5
MW: 336.51

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FIG. 10A

GCMS scan of compound 6

**FIG. 10B**

GCMS scan of compound 7

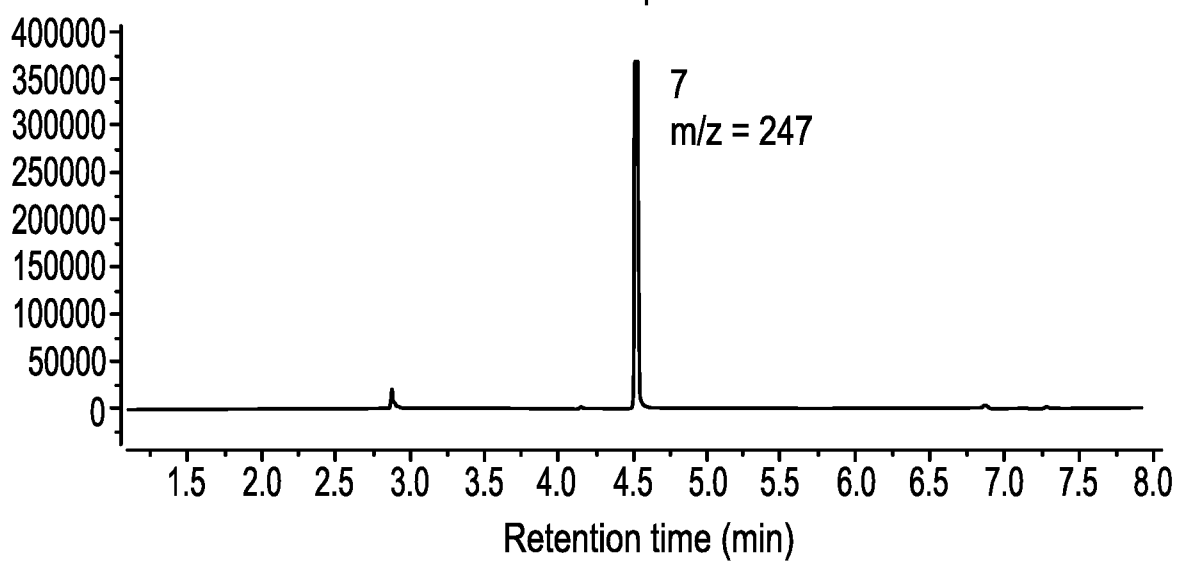
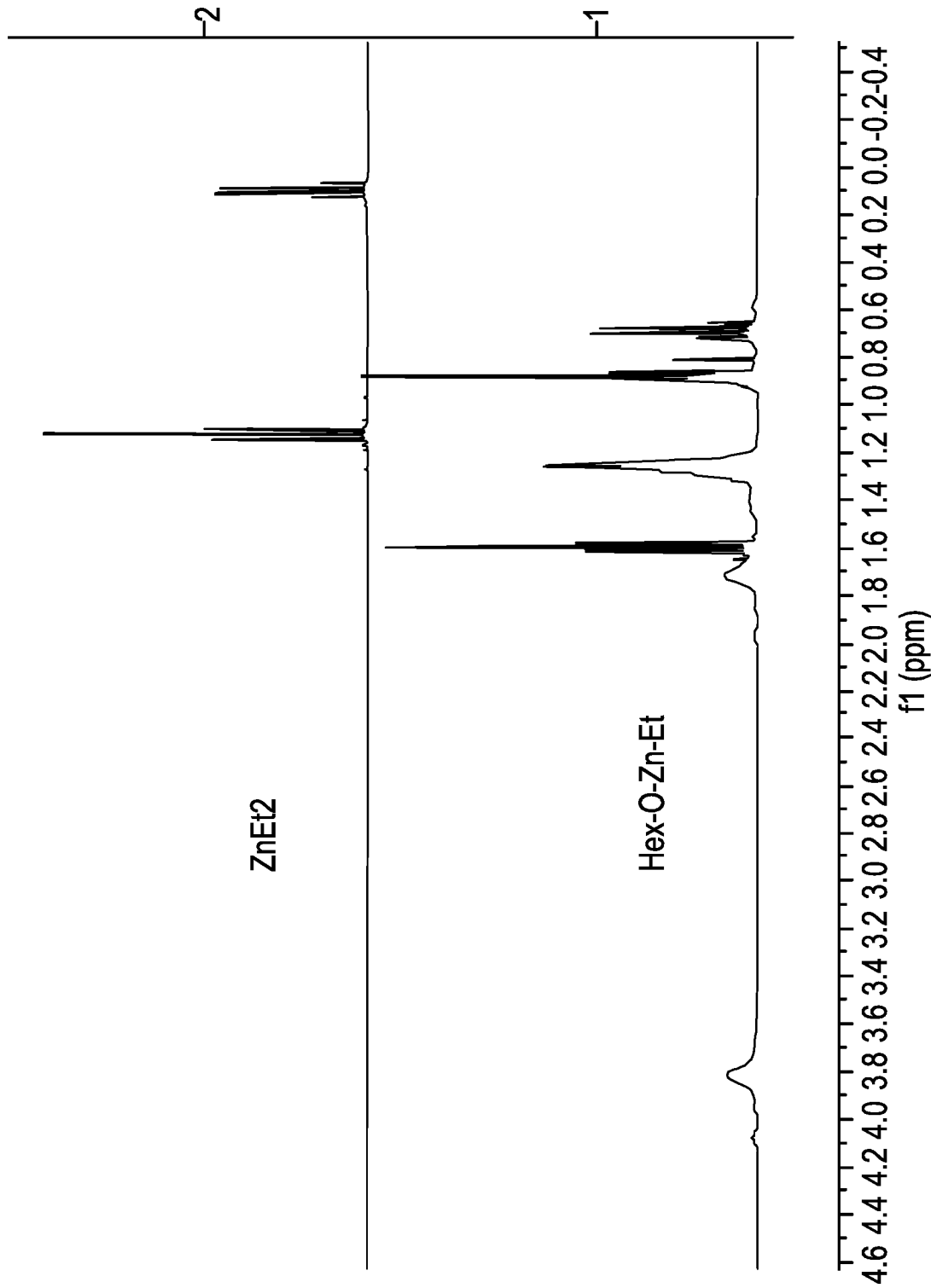


FIG. 11
¹H NMR of Hexyloxyethylzinc



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FIG. 12A

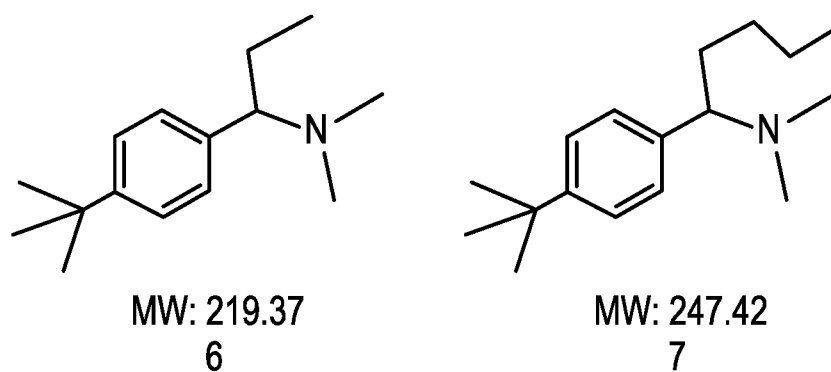
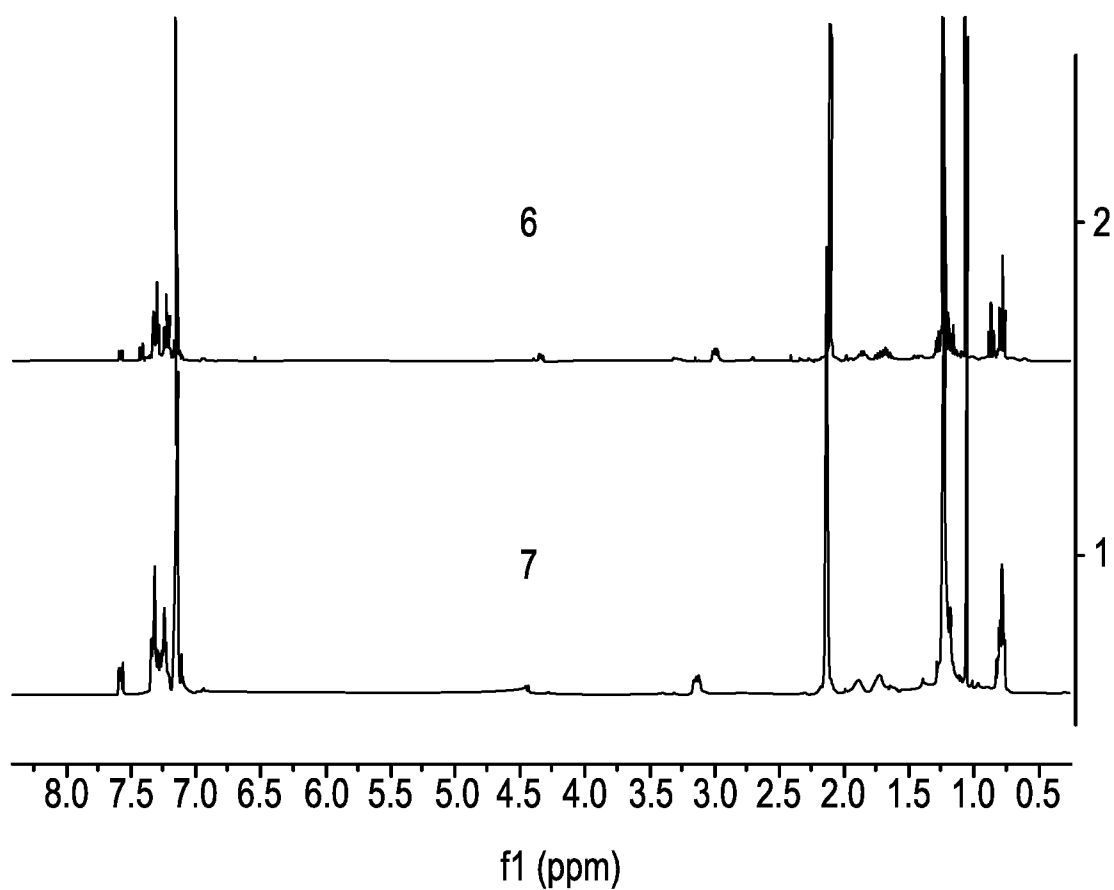


FIG. 12B

¹H NMR spectra of compounds 6 and 7

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FIG. 13

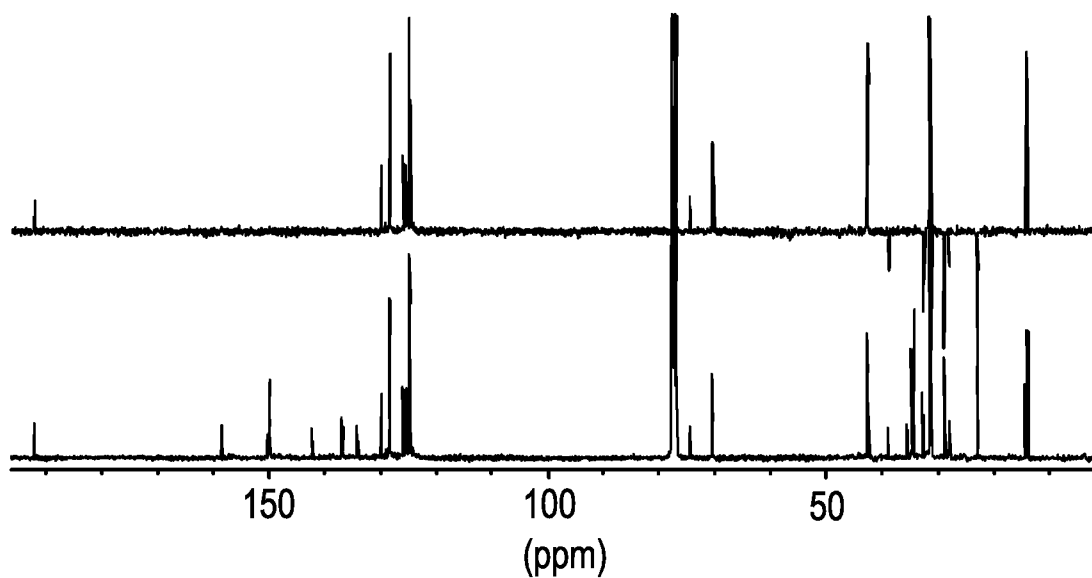
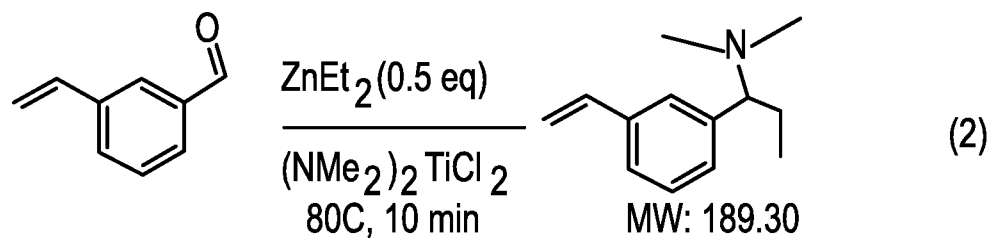
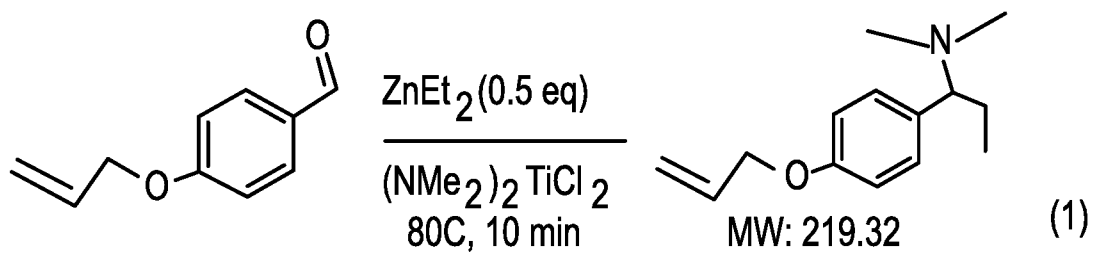
 ^{13}C NMR spectrum of compound 7

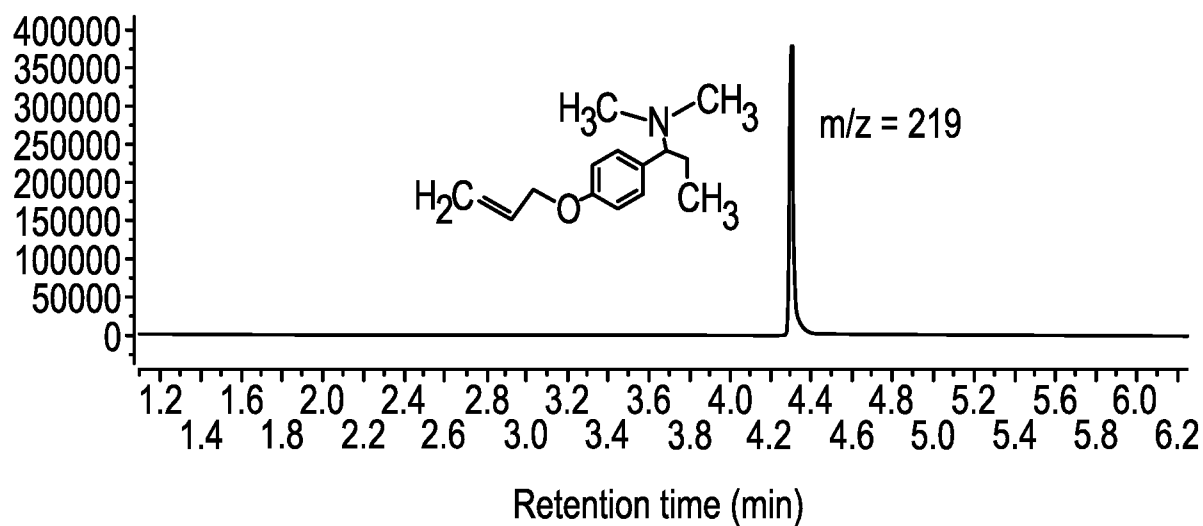
FIG. 14



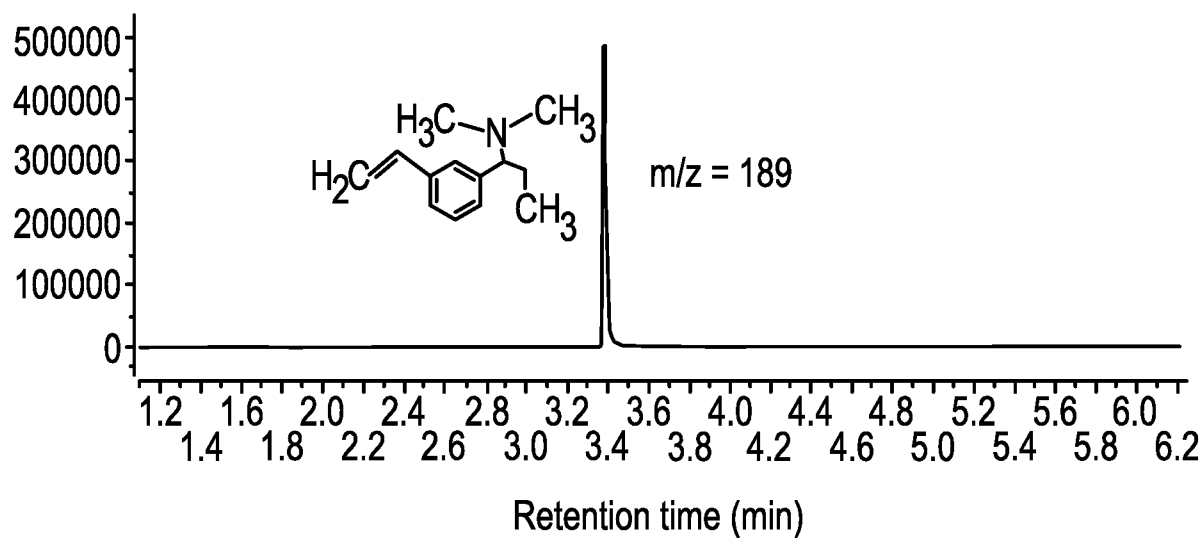
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FIG. 15A

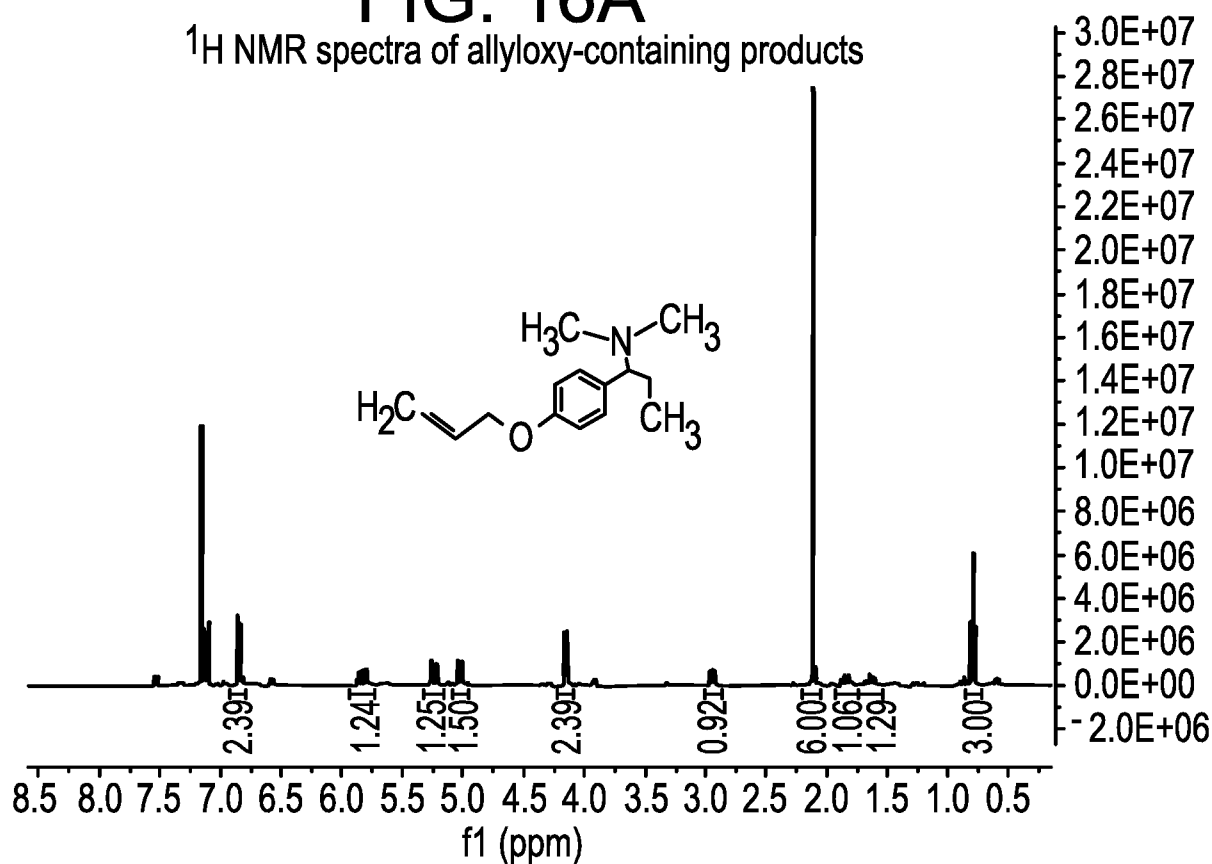
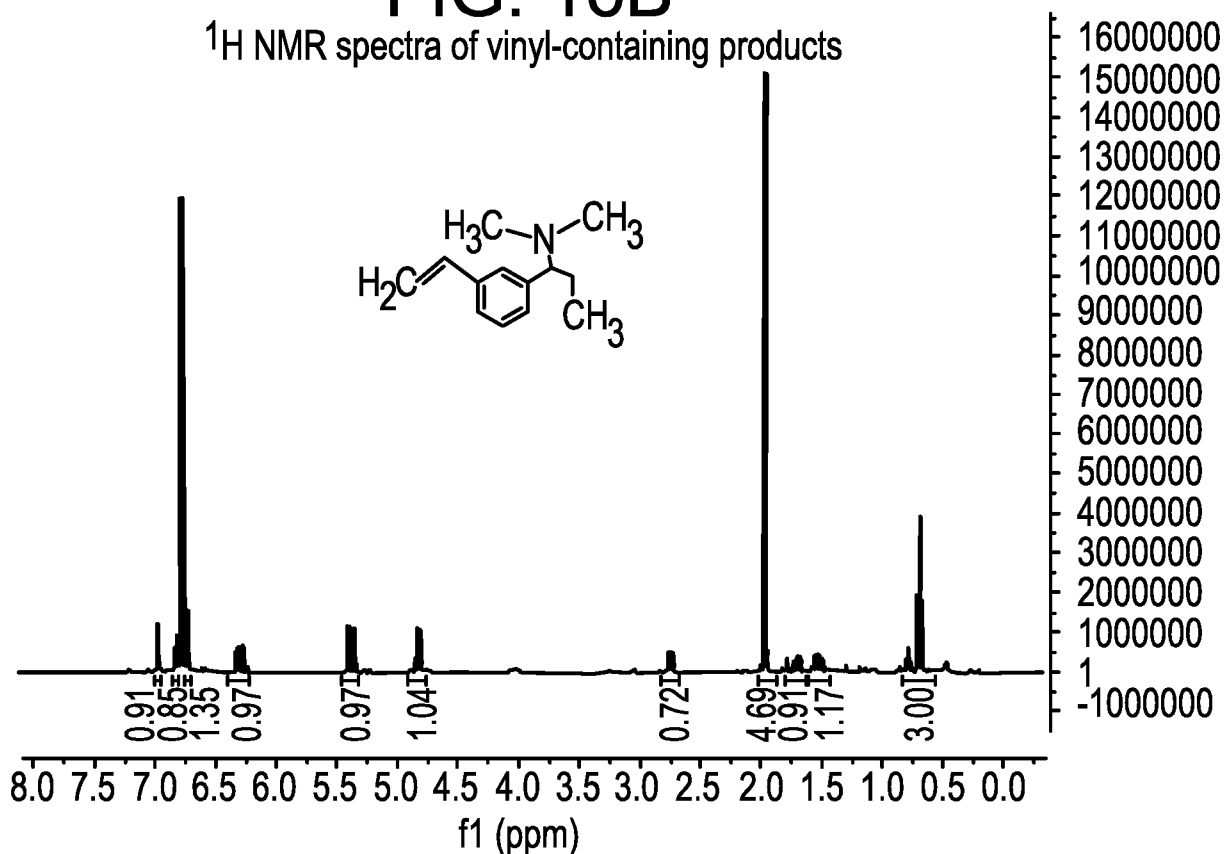
GCMS of allyloxy containing product

**FIG. 15B**

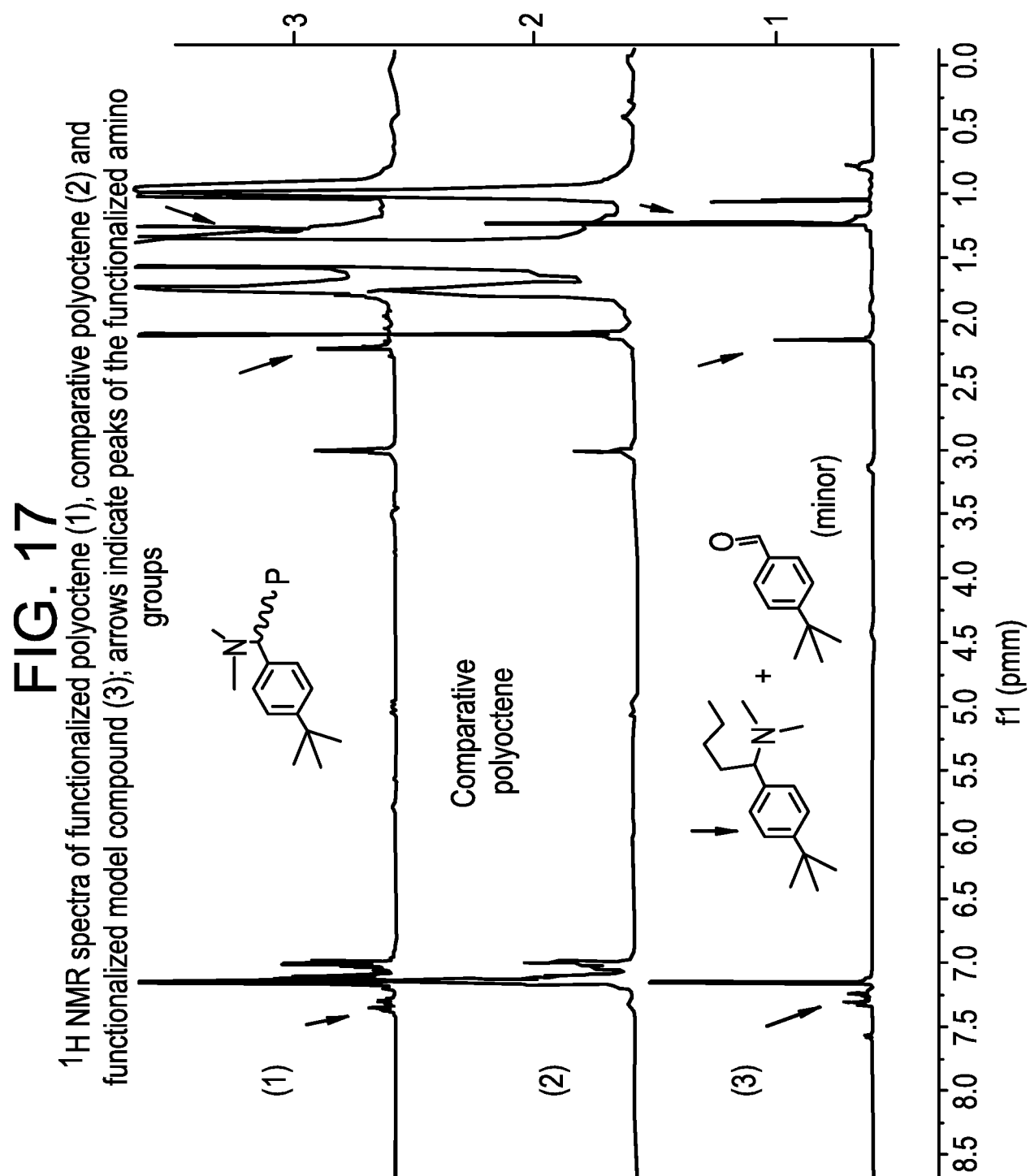
GCMS of vinyl containing products



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FIG. 16A¹H NMR spectra of allyloxy-containing products**FIG. 16B**¹H NMR spectra of vinyl-containing products

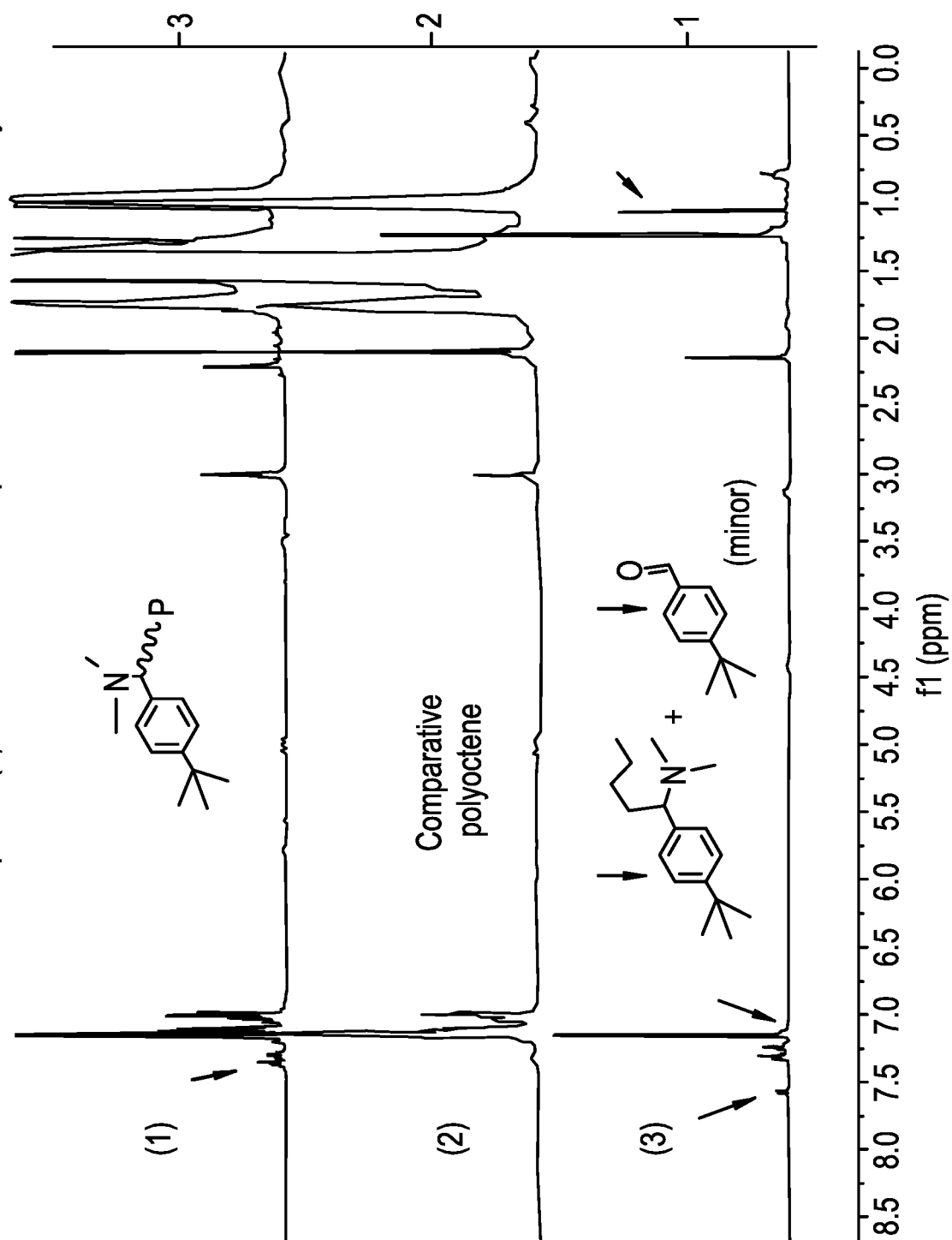
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FIG. 18

¹H NMR spectra of functionalized polyoctene (1), comparative polyoctene (2) and functionalized model compound (3); arrows indicate the peaks of the unreacted aldehyde



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FIG. 19

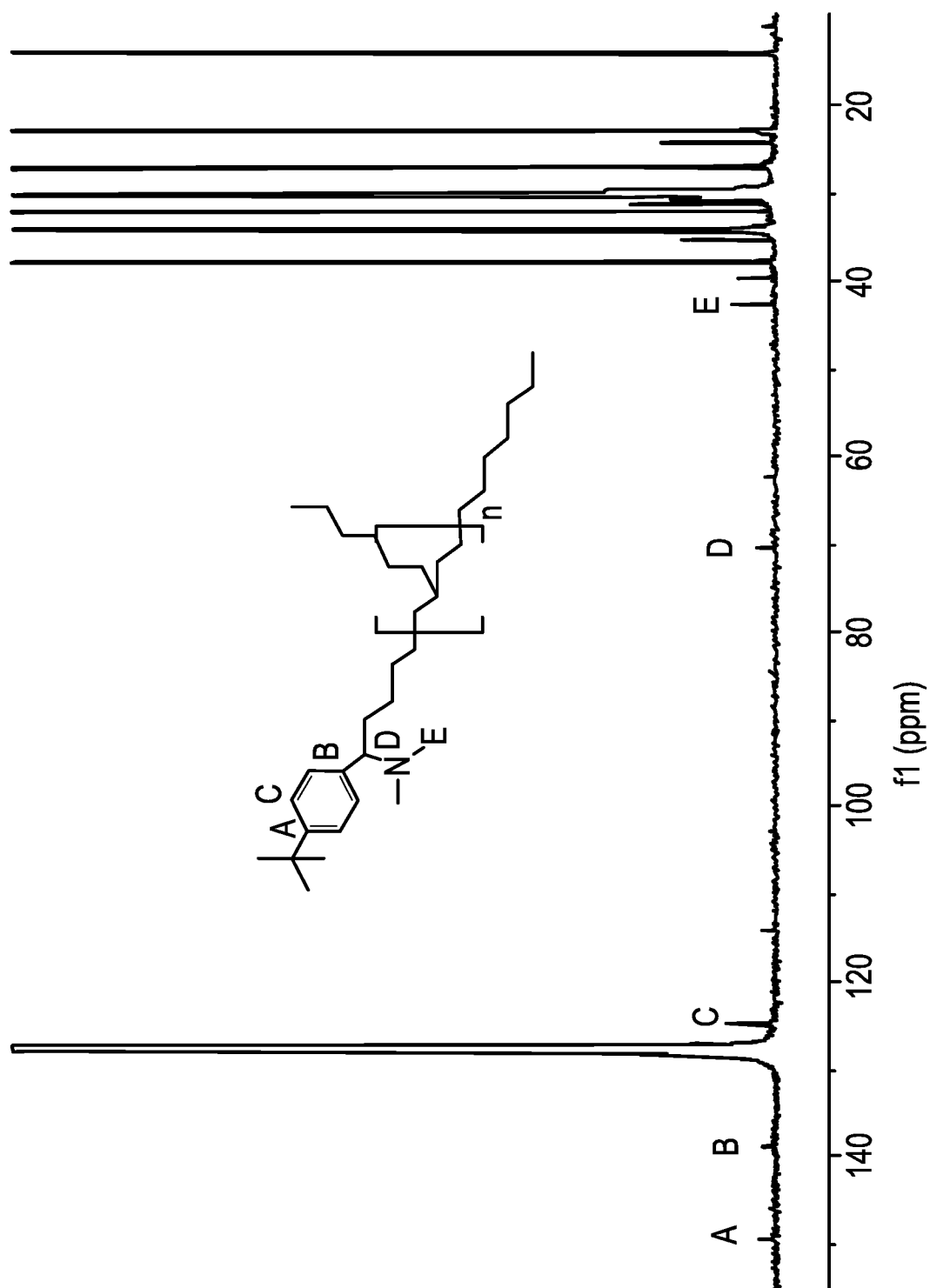
 ^{13}C NMR of functionalized ethylene-octene copolymer in benzene at 60°C

FIG. 20A

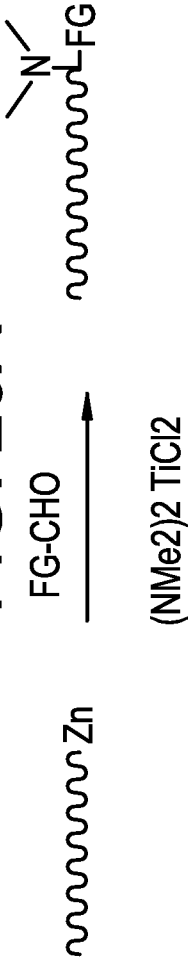


FIG. 20B

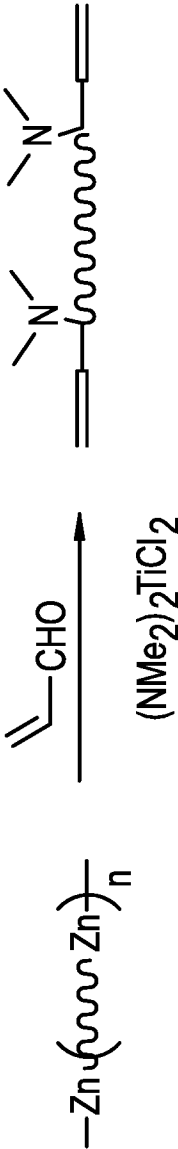


FIG. 20C



FIG. 20D

