

Electronic Supplementary Information

**1-Butylimidazole derive ionic liquids: Synthesis,
characterization and their evaluations of antibacterial,
antifungal and anticancer activities**

Prabodh Ranjan, Bheru Singh Kitawat and Man Singh

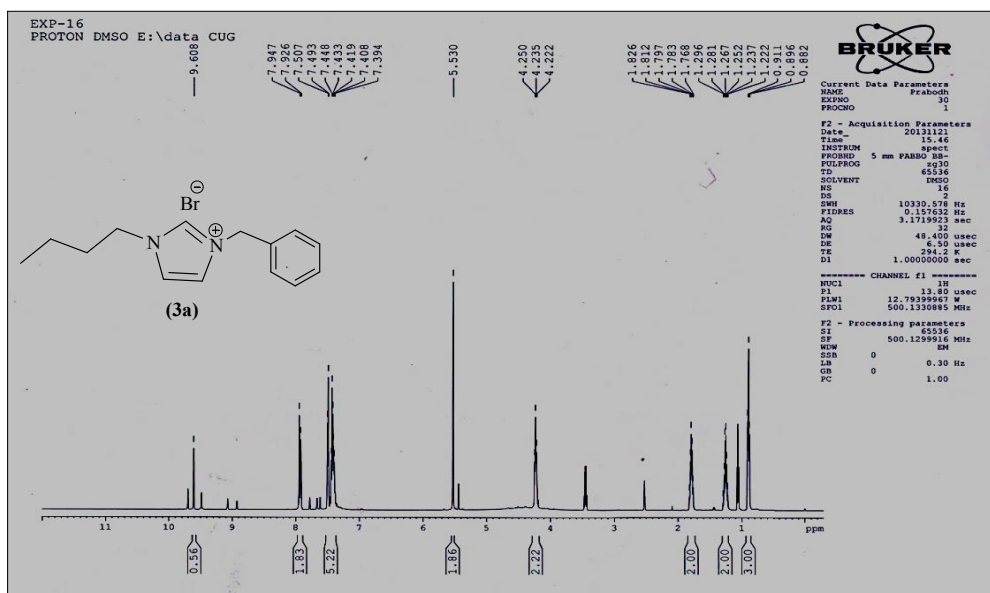


Figure 1.1: ¹H NMR spectra of 3-benzyl-1-butyl-1*H*-imidazol-3-ium bromide (3a)

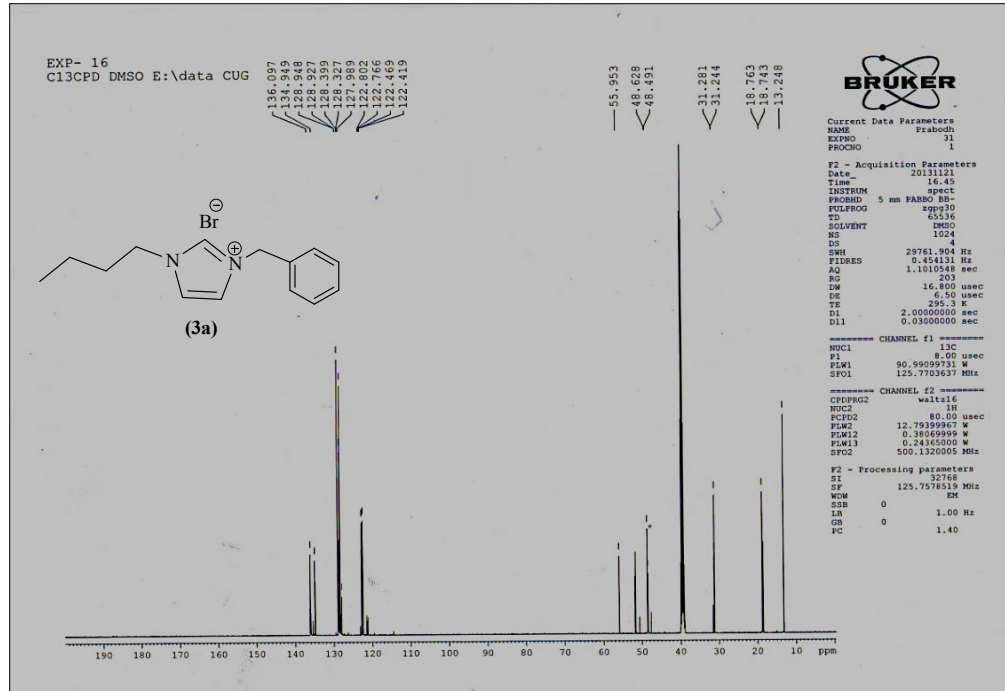


Figure 1.2: ^{13}C NMR spectra of 3-benzyl-1-butyl-1*H*-imidazol-3-ium bromide (3a)

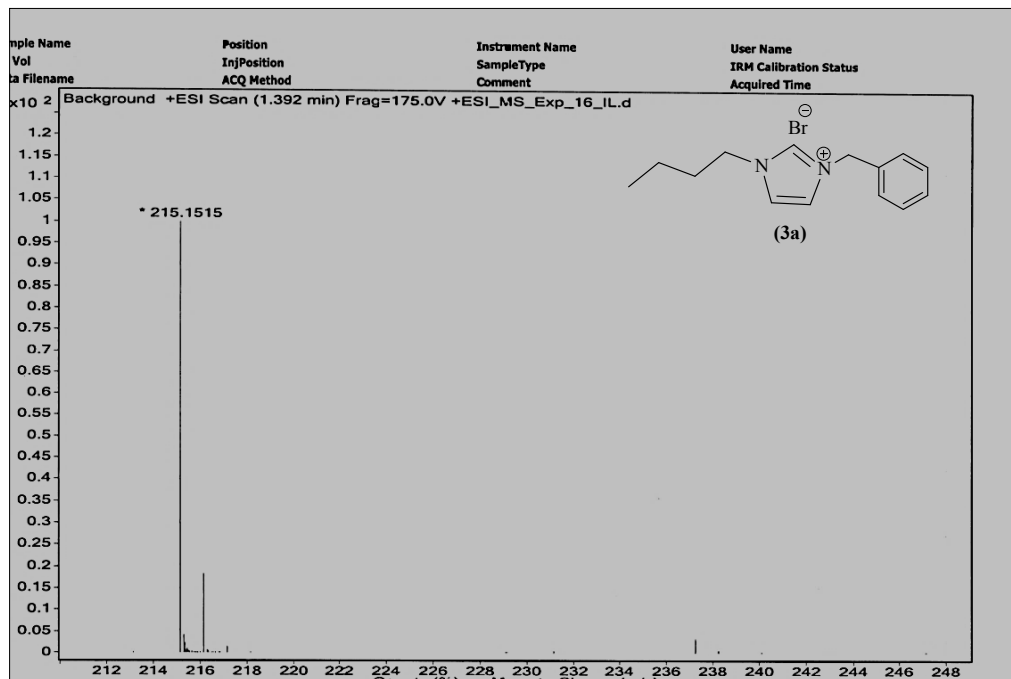


Figure 1.3: Mass spectra of 3-benzyl-1-butyl-1*H*-imidazol-3-ium bromide (3a)

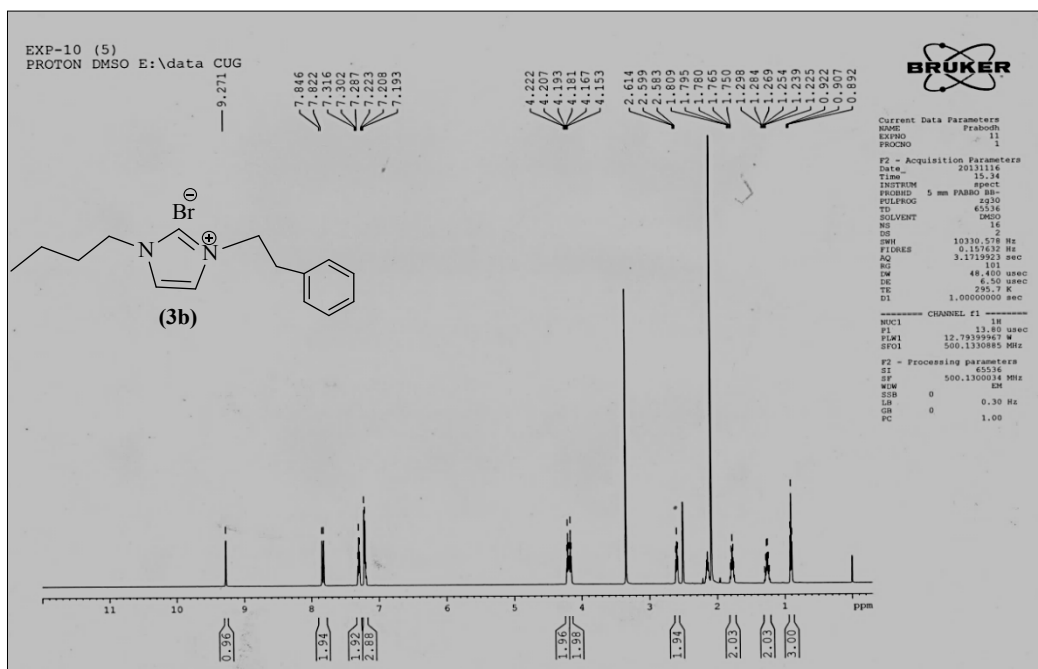


Figure 1.4: ^1H NMR spectra of 1-butyl-3-phenethyl-1*H*-imidazol-3-ium bromide (**3b**)

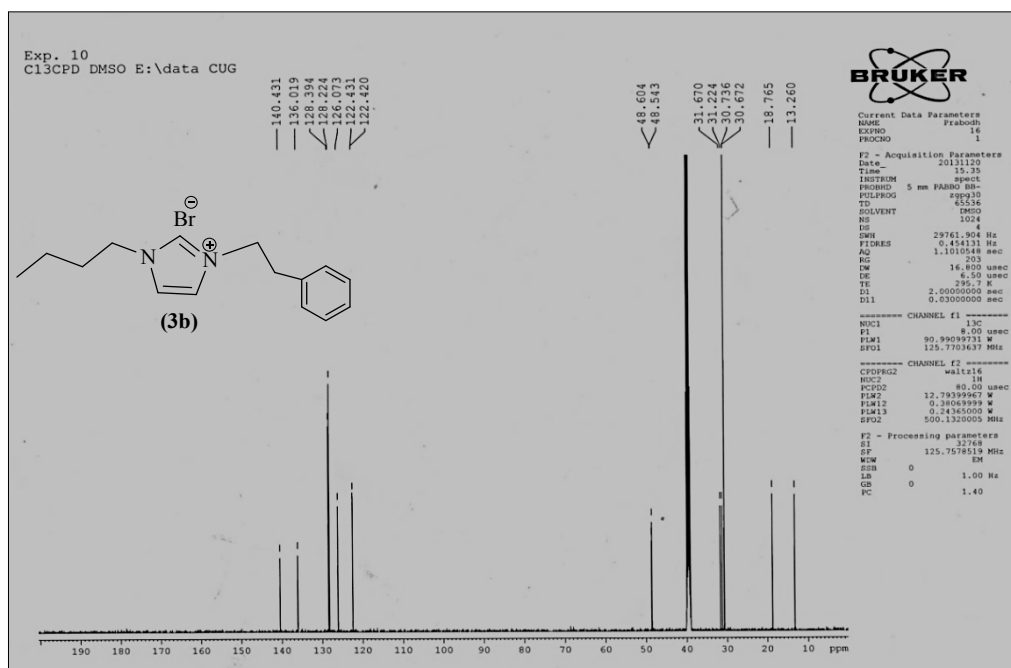


Figure 1.5: ^{13}C NMR spectra of 1-butyl-3-phenethyl-1*H*-imidazol-3-ium bromide (**3b**)

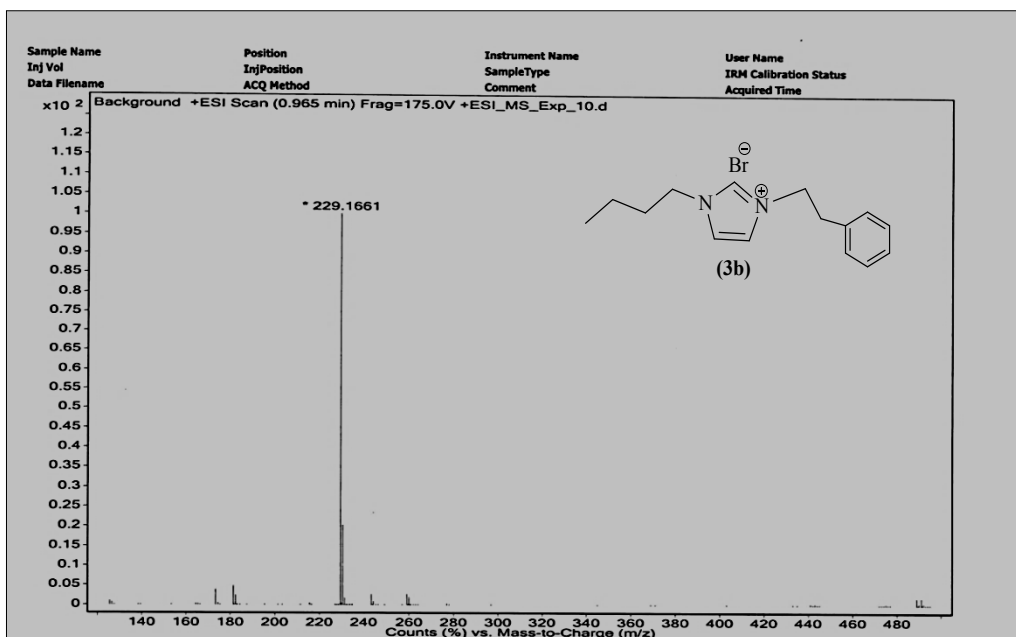


Figure 1.6: Mass spectra of 1-butyl-3-phenethyl-1*H*-imidazol-3-ium bromide (3b)



Figure 1.7: ¹H NMR spectra of 1-butyl-3-(2-phenoxyethyl)-1*H*-imidazol-3-ium bromide (3c)

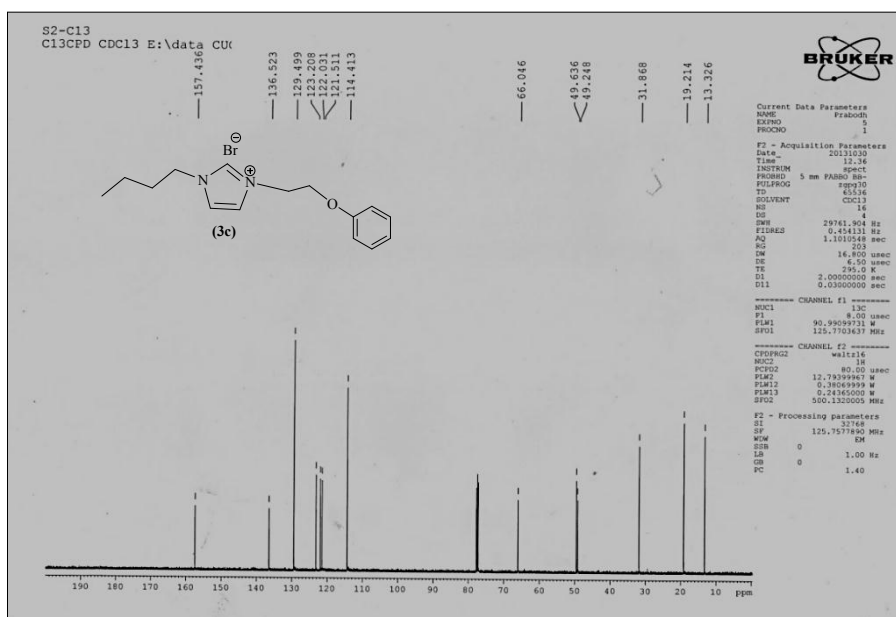


Figure 1.8: ^{13}C NMR spectra of 1-butyl-3-(2-phenoxyethyl)-1*H*-imidazol-3-ium bromide (3C)

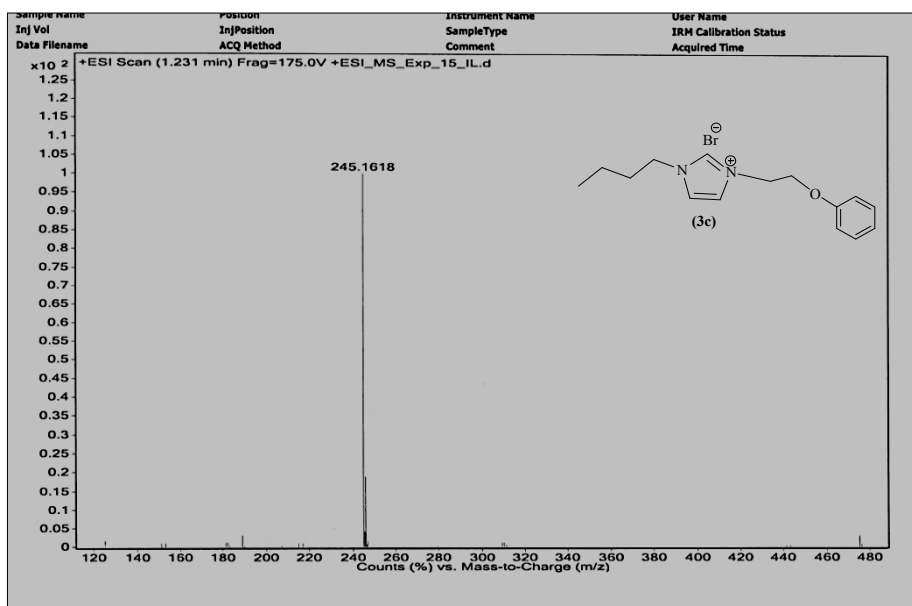


Figure 1.9: Mass spectra of 1-butyl-3-(2-phenoxyethyl)-1*H*-imidazol-3-ium bromide (3C)

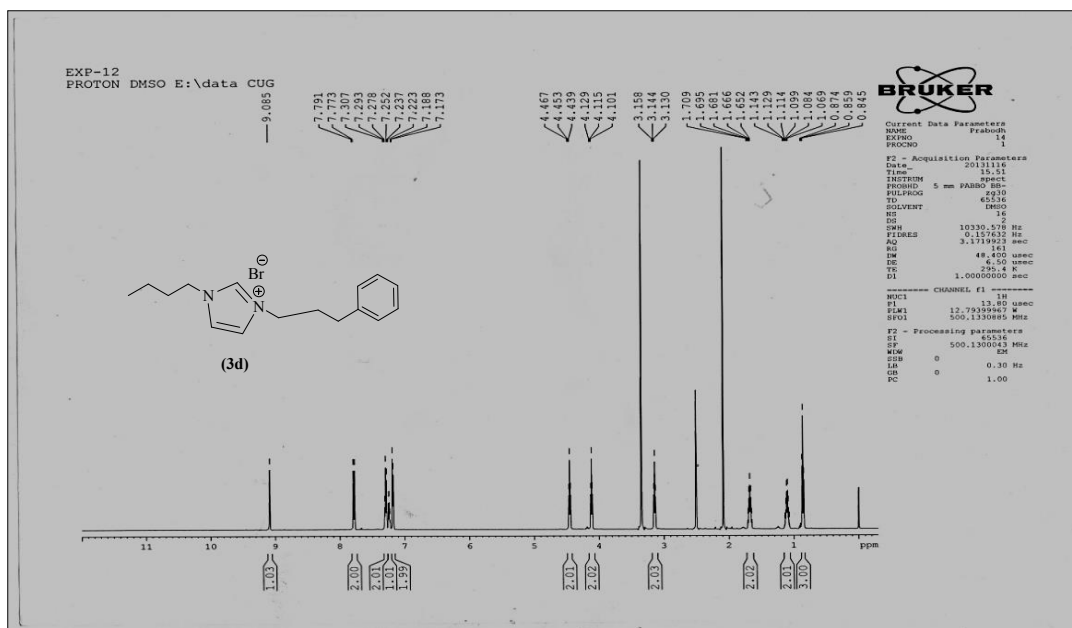


Figure 1.10: ^1H spectra of 1-butyl-3-(3-phenylpropyl)-1*H*-imidazol-3-ium bromide (3d)

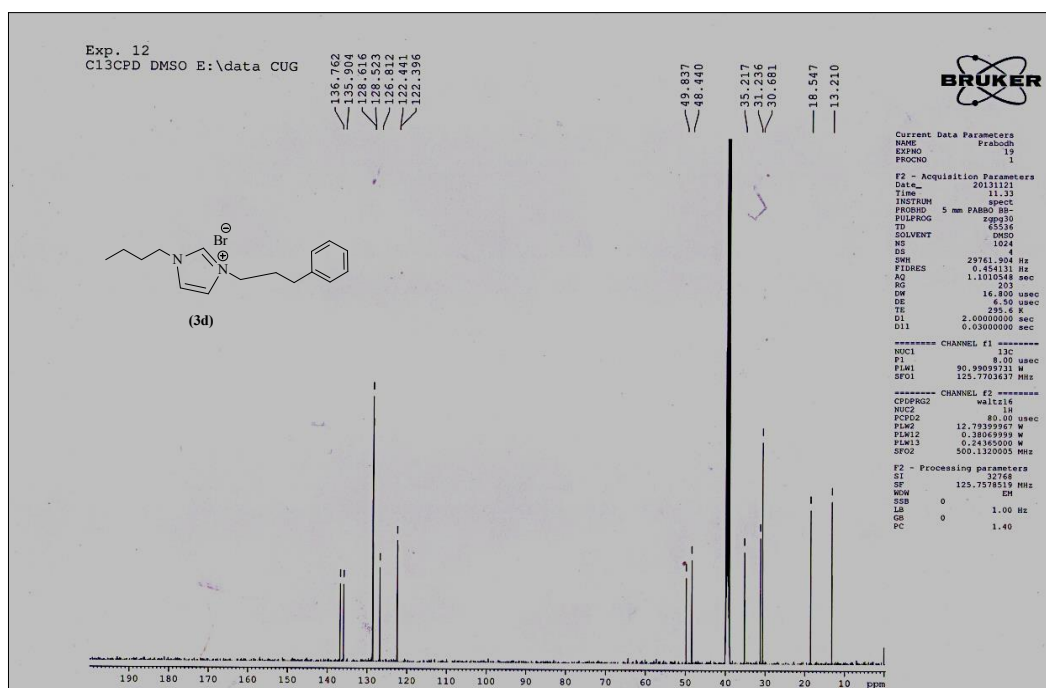


Figure 1.11: ^{13}C spectra of 1-butyl-3-(3-phenylpropyl)-1*H*-imidazol-3-ium bromide (3d)

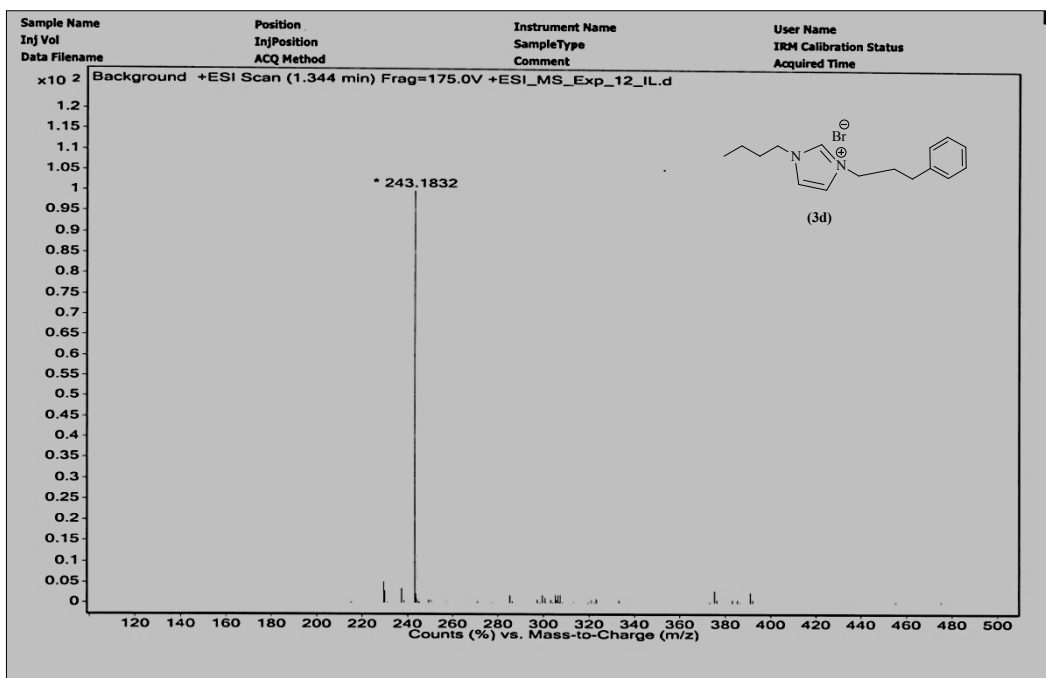


Figure 1.12: Mass spectra of 1-butyl-3-(3-phenylpropyl)-1*H*-imidazol-3-ium bromide (3d)

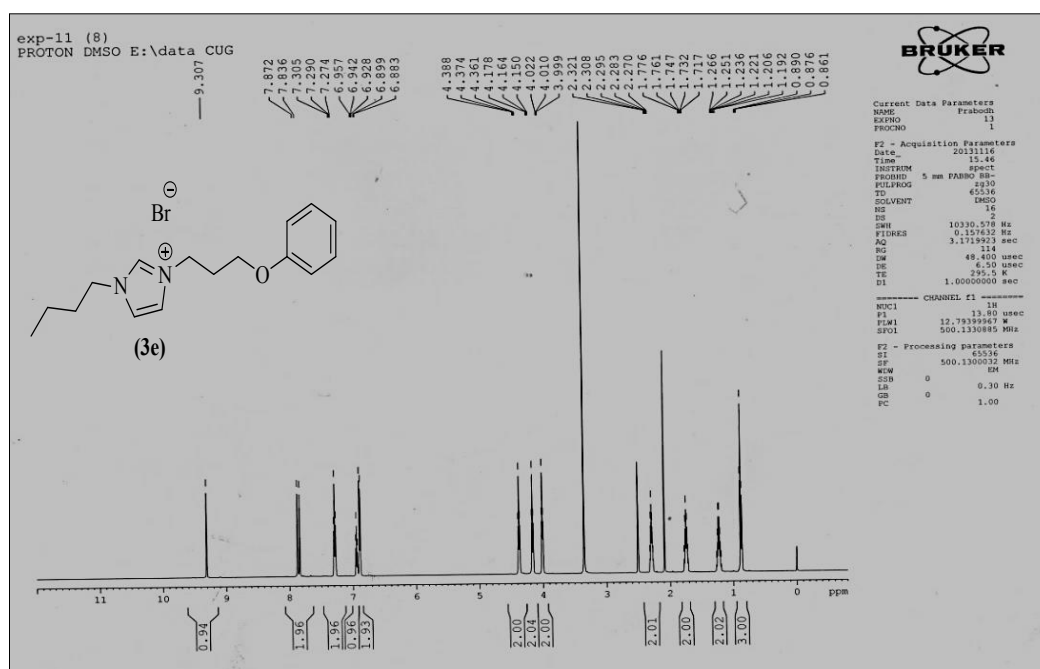


Figure 1.13: ¹H spectra of 1-butyl-3-(3-phenoxypropyl)-1*H*-imidazol-3-ium bromide (3e)

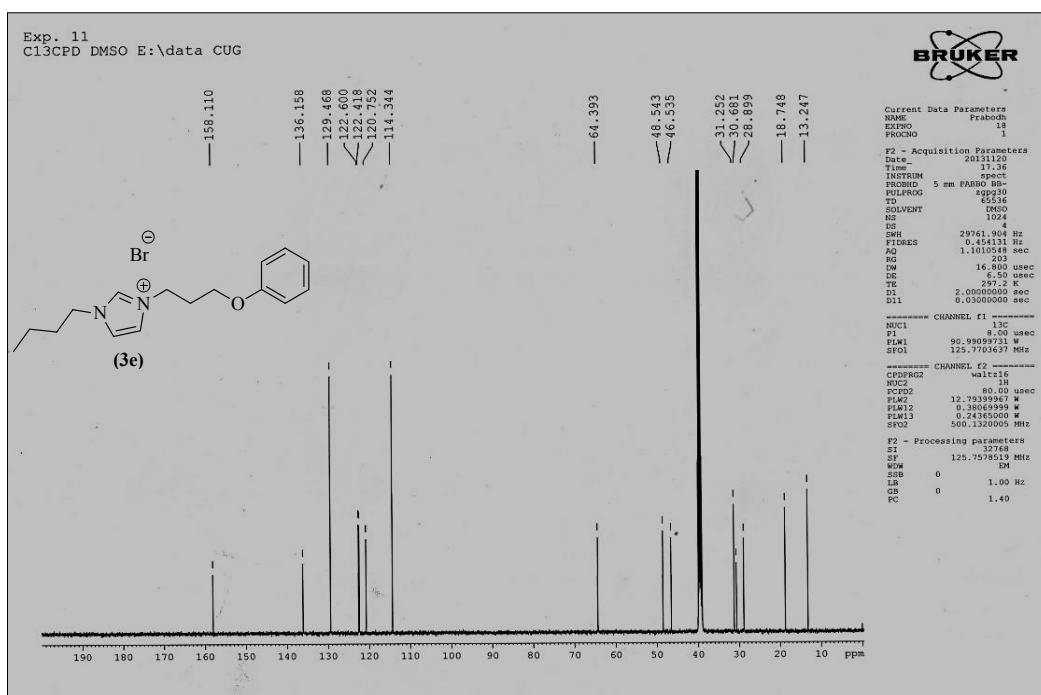


Figure 1.14: ^{13}C spectra of 1-butyl-3-(3-phenoxypropyl)-1*H*-imidazol-3-ium bromide (**3e**)

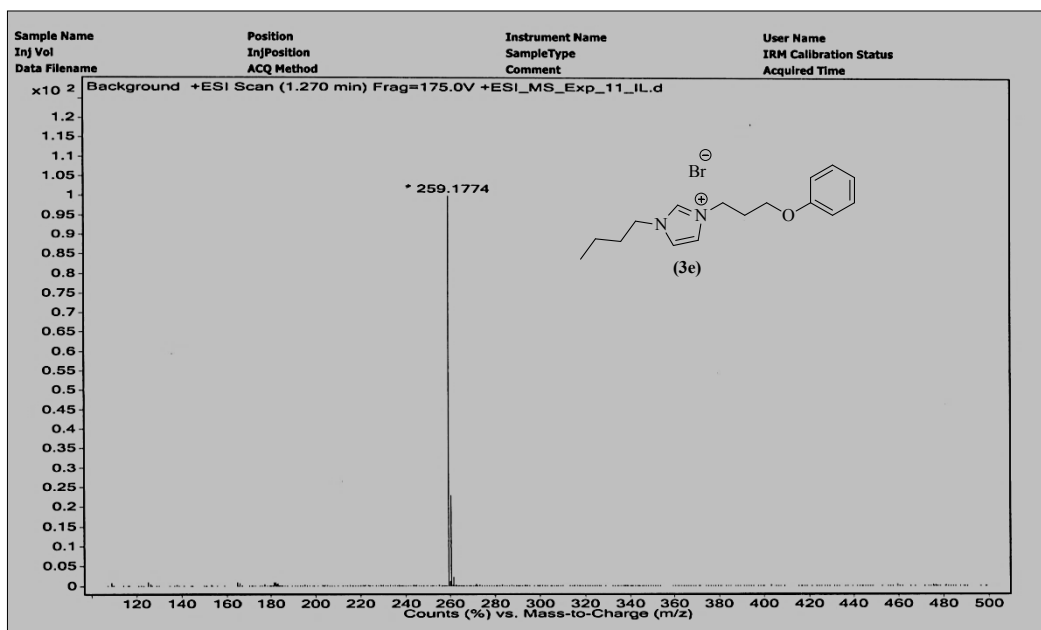


Figure 1.15: Mass spectra of 1-butyl-3-(3-phenoxypropyl)-1*H*-imidazol-3-ium bromide (**3e**)

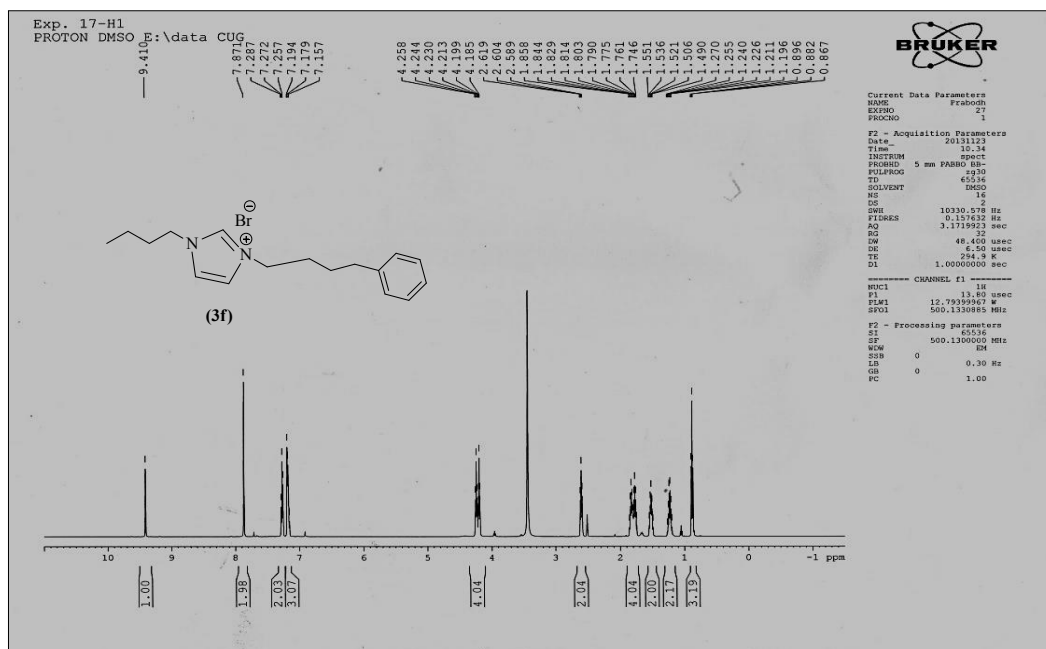


Figure 1.16: ^1H spectra of NMR spectra of 1-butyl-3-(4-phenylbutyl)-1*H*-imidazol-3-ium (3f)

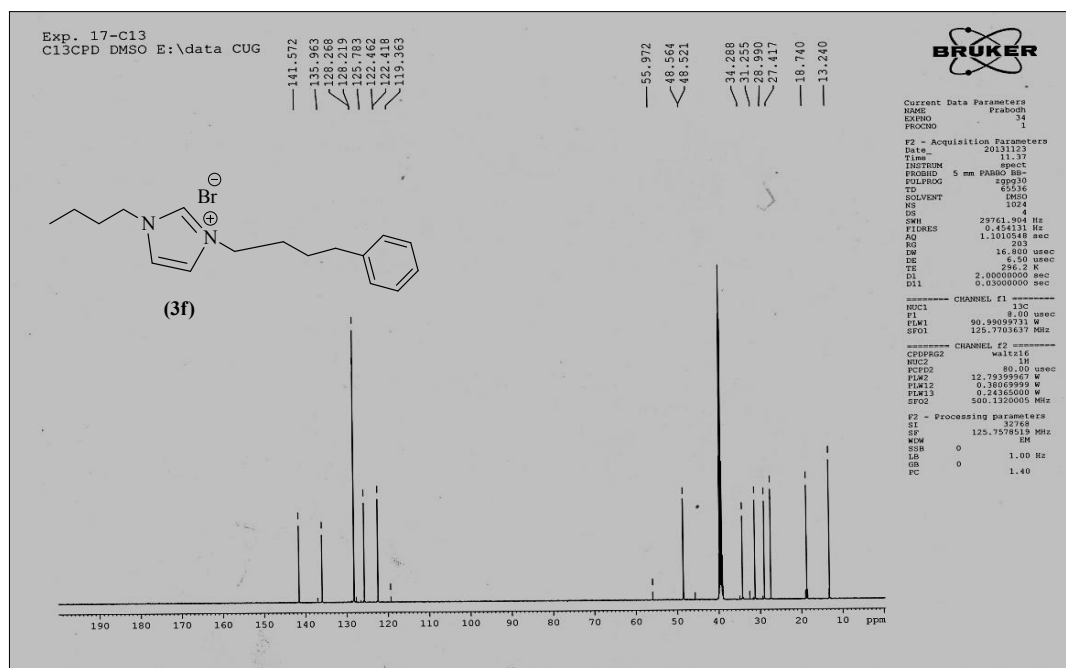


Figure 1.17: ^{13}C spectra of NMR spectra of 1-butyl-3-(4-phenylbutyl)-1*H*-imidazol-3-ium (3f)

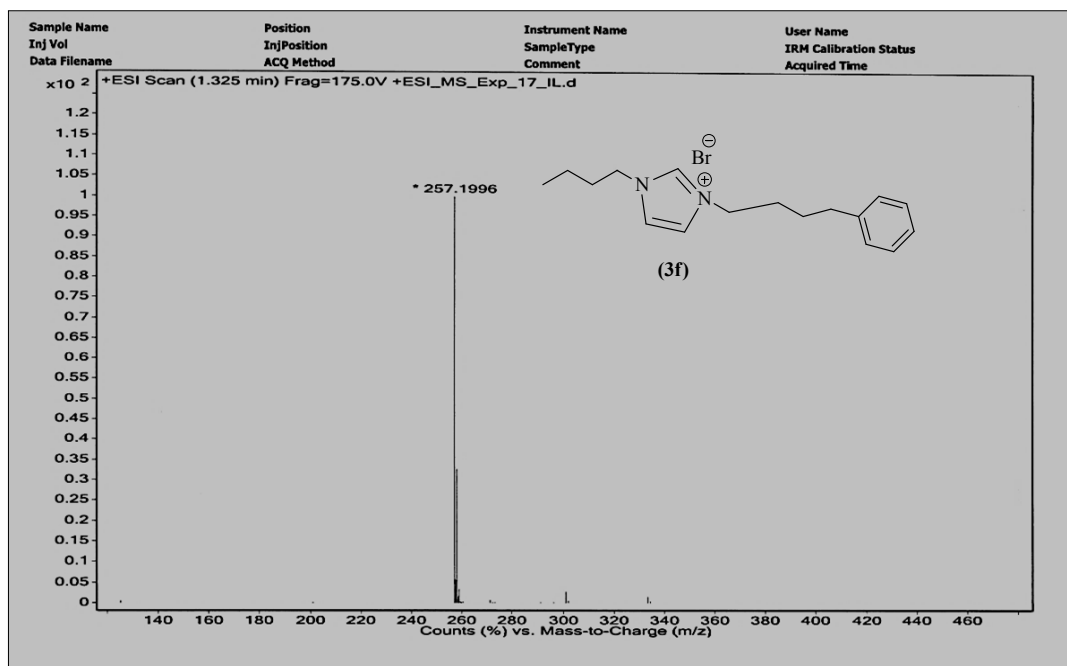


Figure 1.18: Mass spectra of NMR spectra of 1-butyl-3-(4-phenylbutyl)-1*H*-imidazol-3-ium (3f)

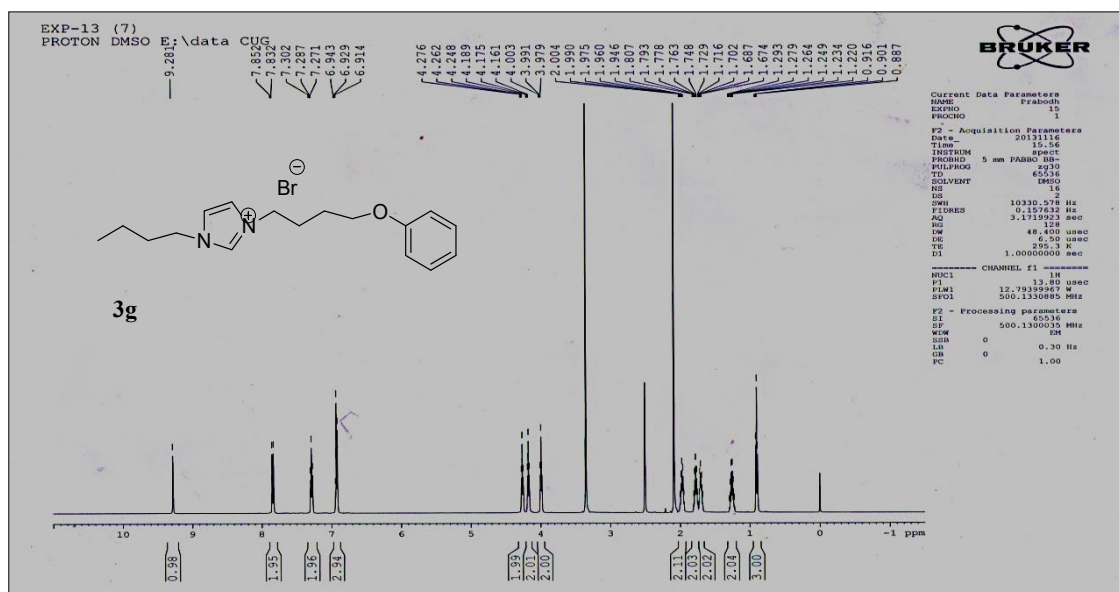


Figure 1.19: ¹H spectra of 1-butyl-3-(4-phenoxybutyl)-1*H*-imidazol-3-ium bromide (3g)

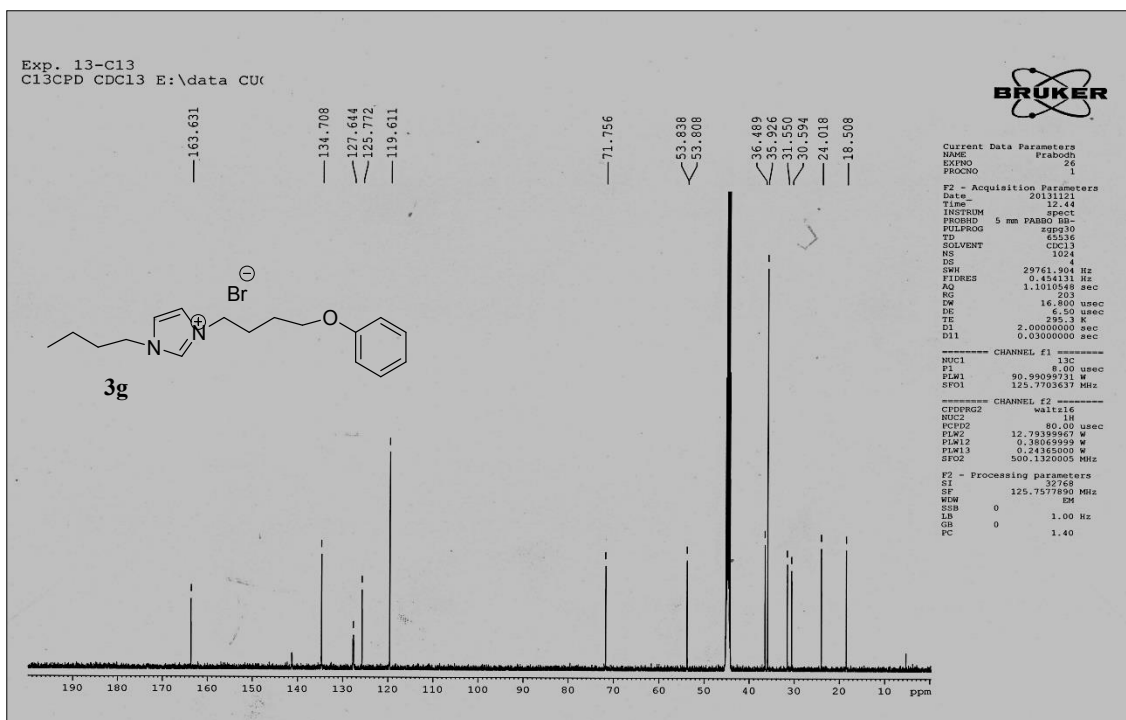


Figure 1.20: ^{13}C spectra of 1-butyl-3-(4-phenoxybutyl)-1*H*-imidazol-3-ium bromide (**3g**)

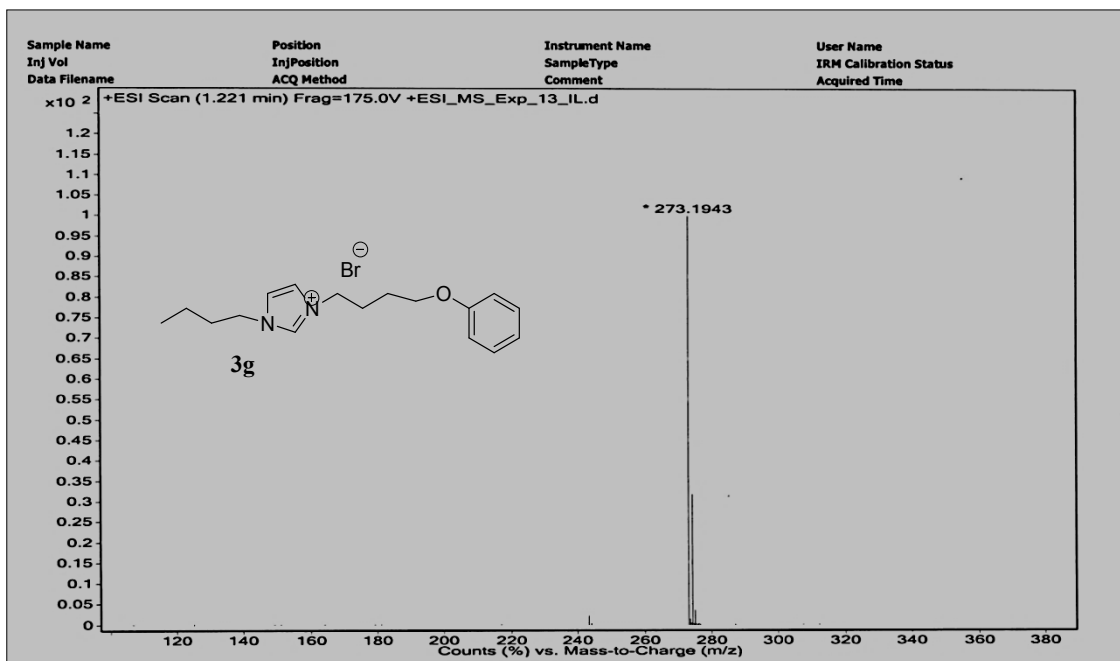


Figure 1.21: Mass spectra of 1-butyl-3-(4-phenoxybutyl)-1*H*-imidazol-3-ium bromide (**3g**)

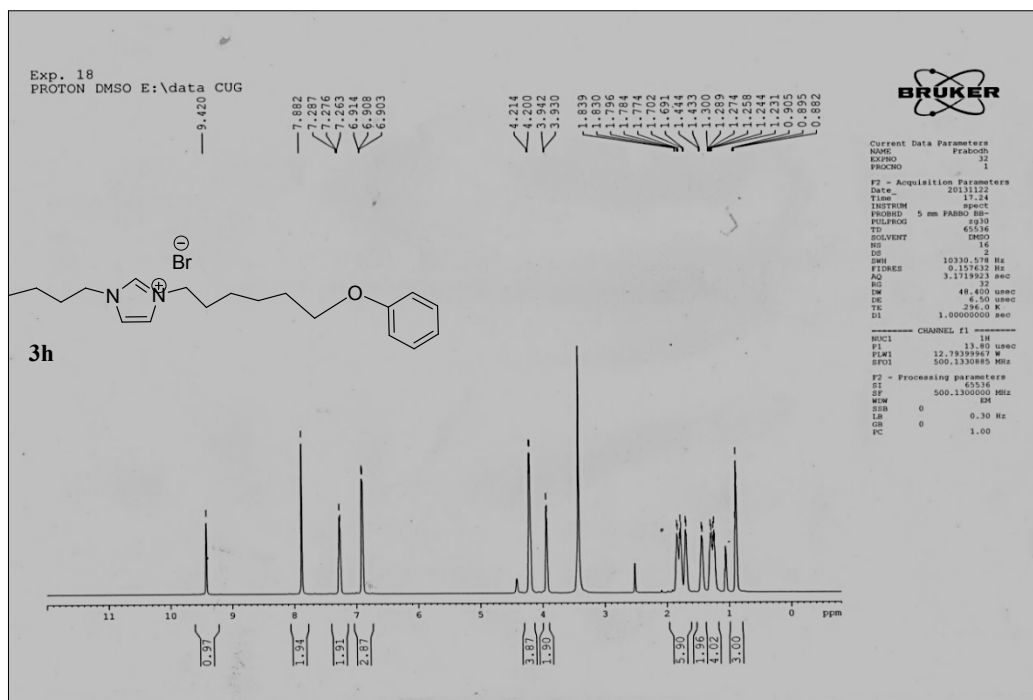


Figure 1.22: ^1H spectra of 1-butyl-3-(6-phenylhexyl)-1*H*-imidazol-3-ium bromide (**3h**)

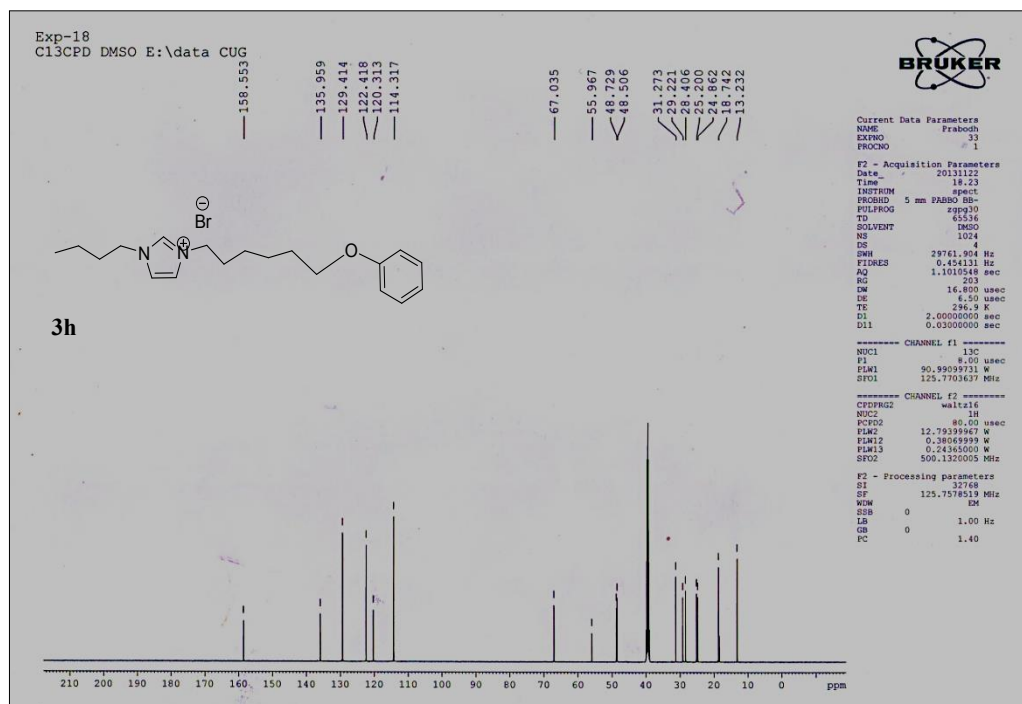


Figure 1.23: ^{13}C spectra of 1-butyl-3-(6-phenylhexyl)-1*H*-imidazol-3-ium bromide (**3h**)

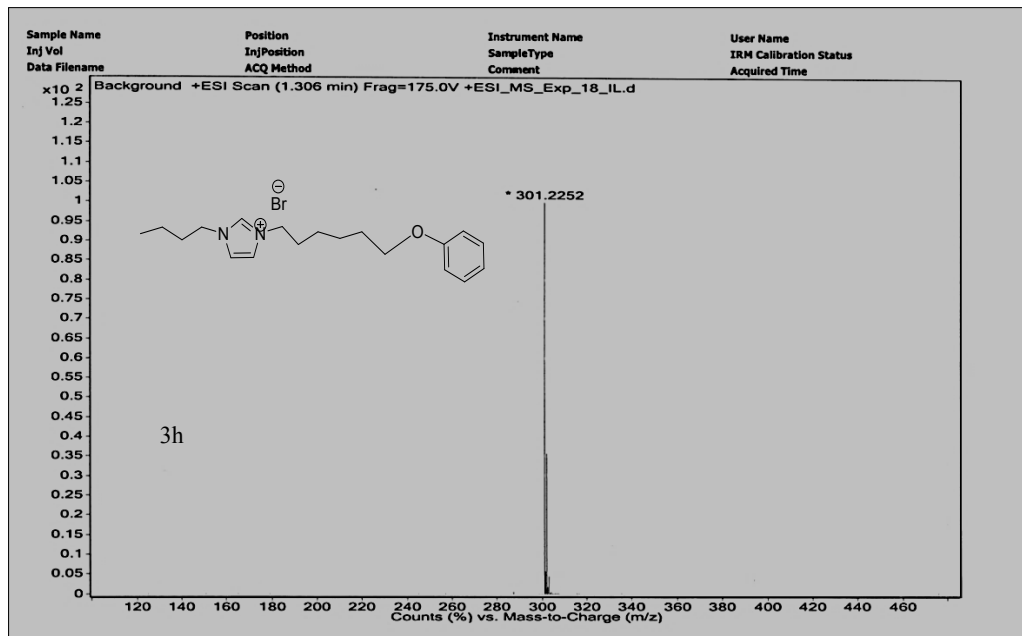


Figure 1.24: Mass spectra of 1-butyl-3-(6-phenylhexyl)-1*H*-imidazol-3-ium bromide (**3h**)

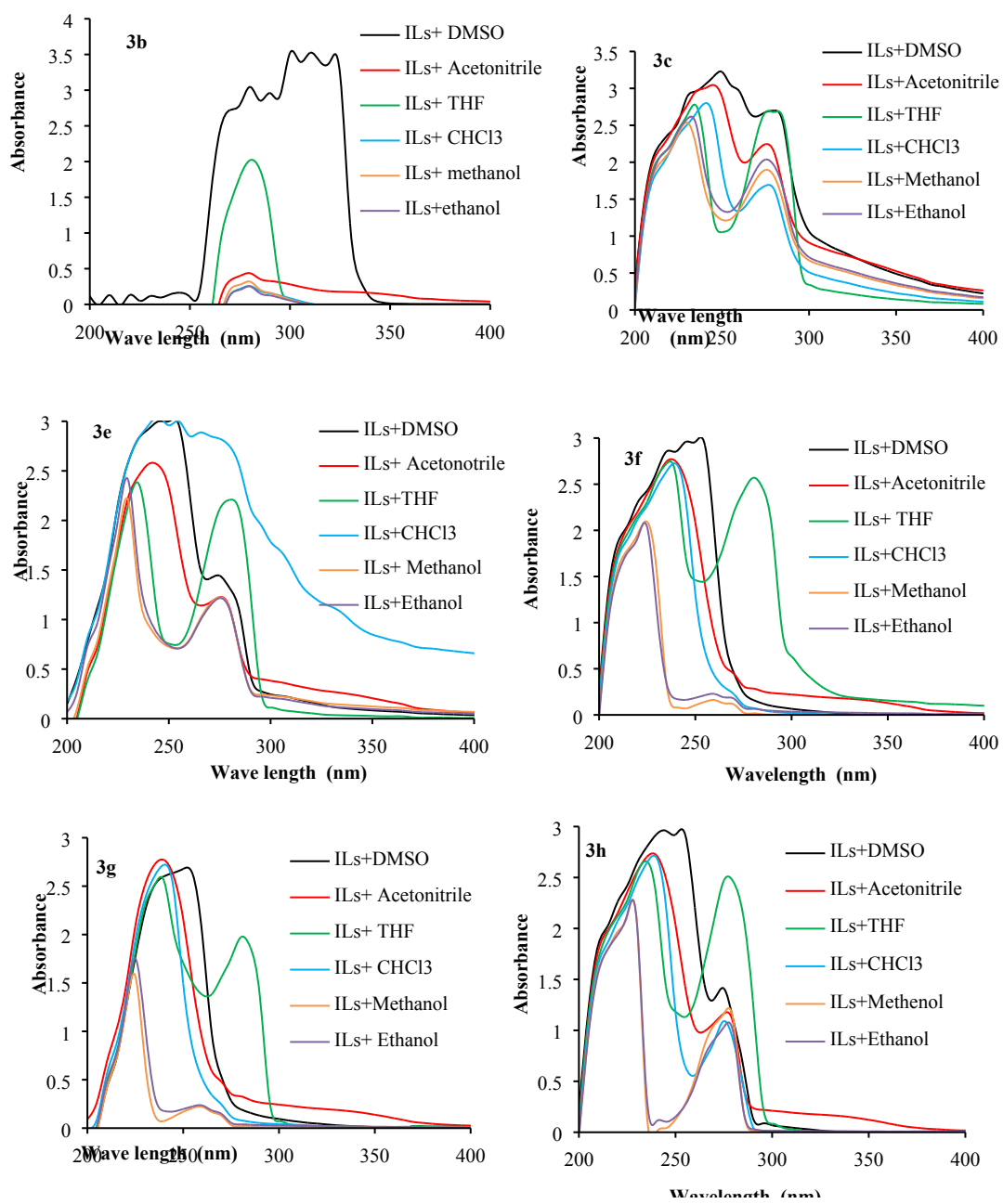


Figure 1.25: UV-Vis absorption spectra of ILs **3b**, **3c** and **3e-3h**