

Supplementary Material

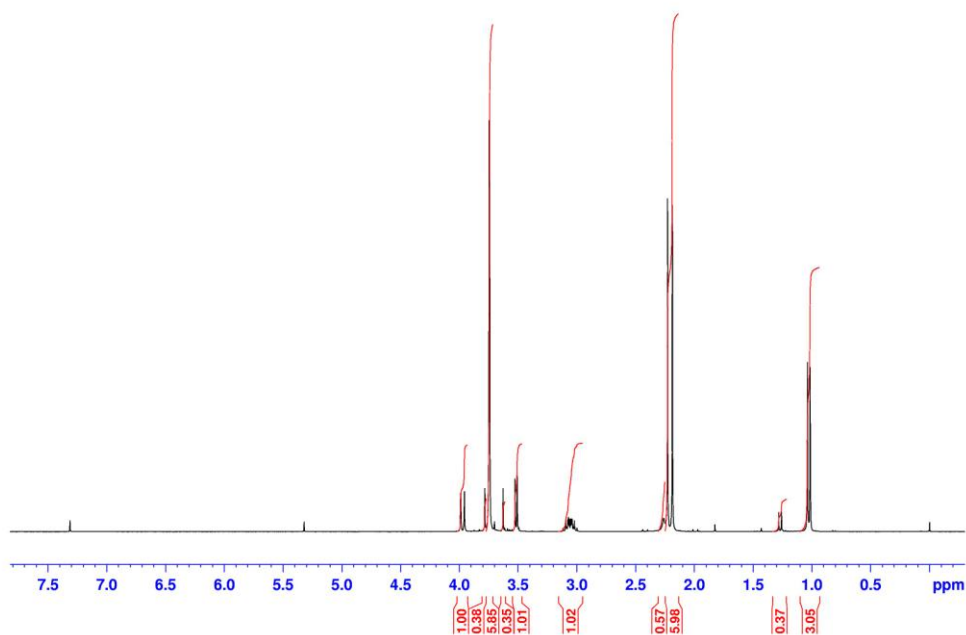
Selective Michael additions to alkylidenemalonates using thiourea-based bifunctional organocatalysts

Declan P. Gavin and John C. Stephens*

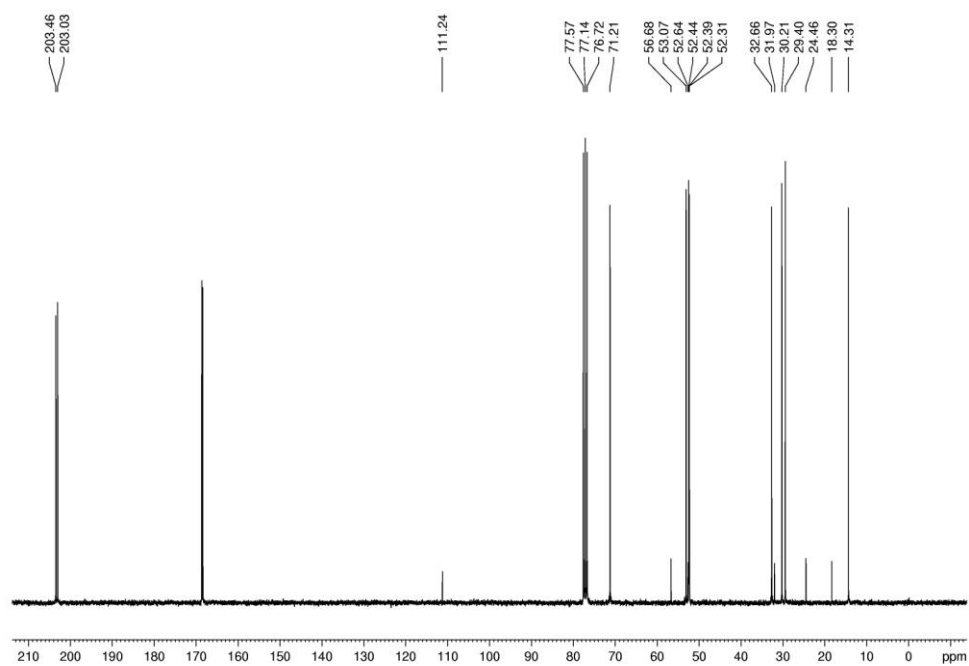
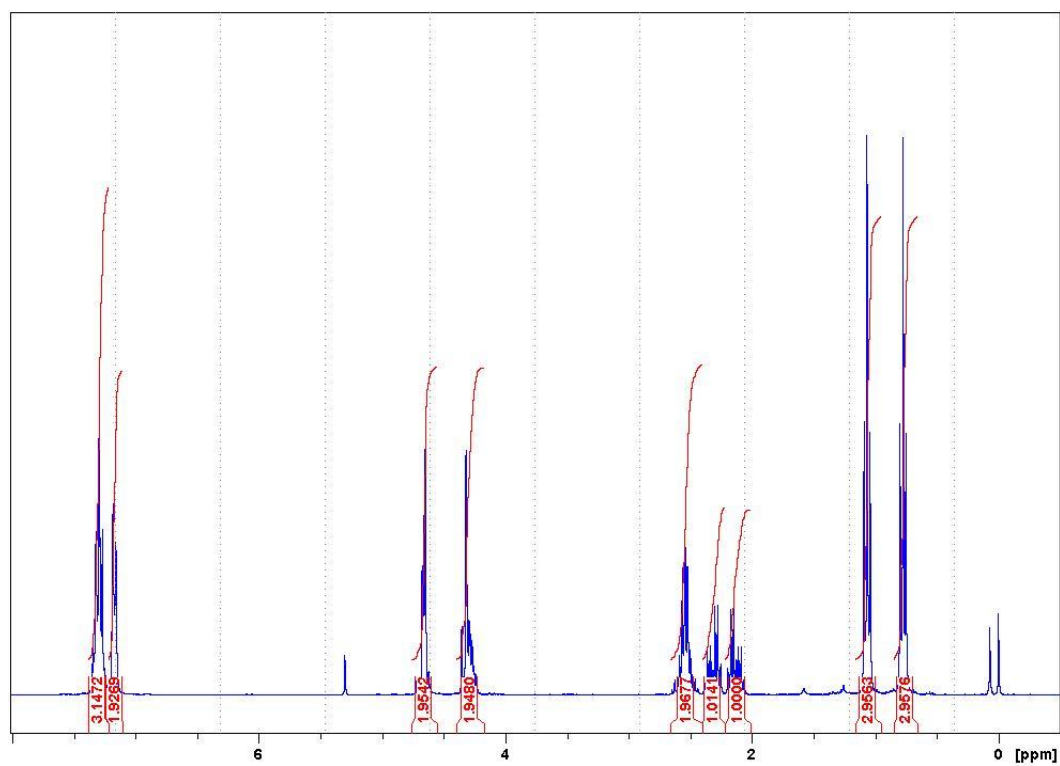
Department of Chemistry, National University of Ireland Maynooth, Co. Kildare, Ireland

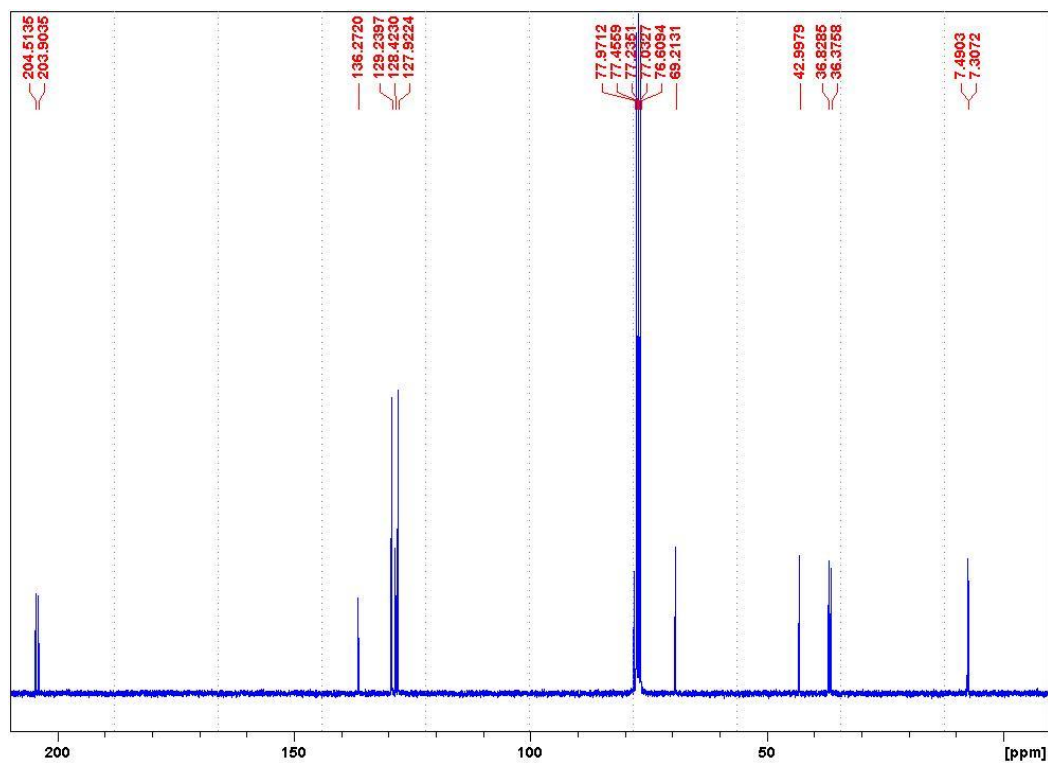
E-mail: john.stephens@nuim.ie

NMR Spectra

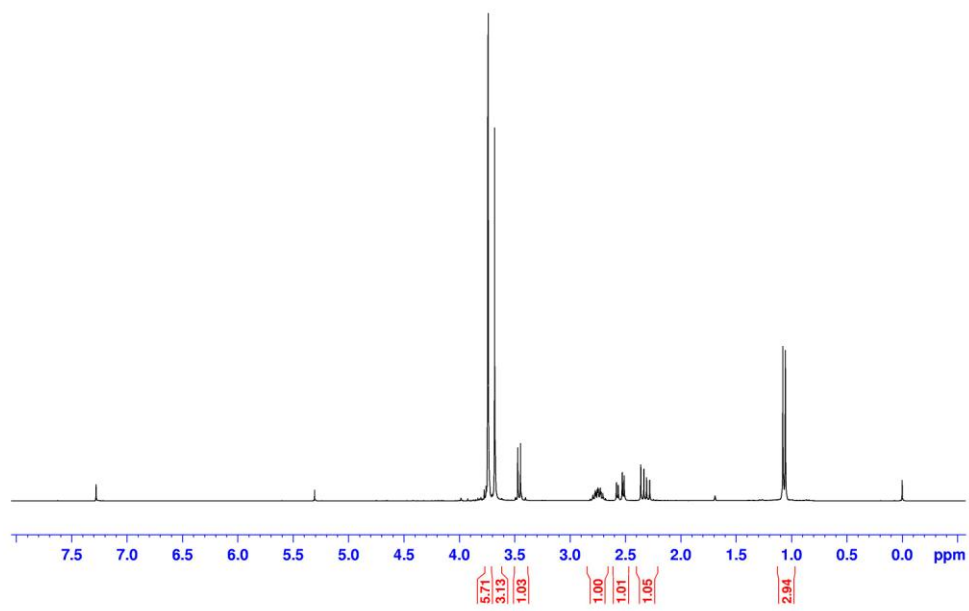


^1H NMR spectrum for **6a**

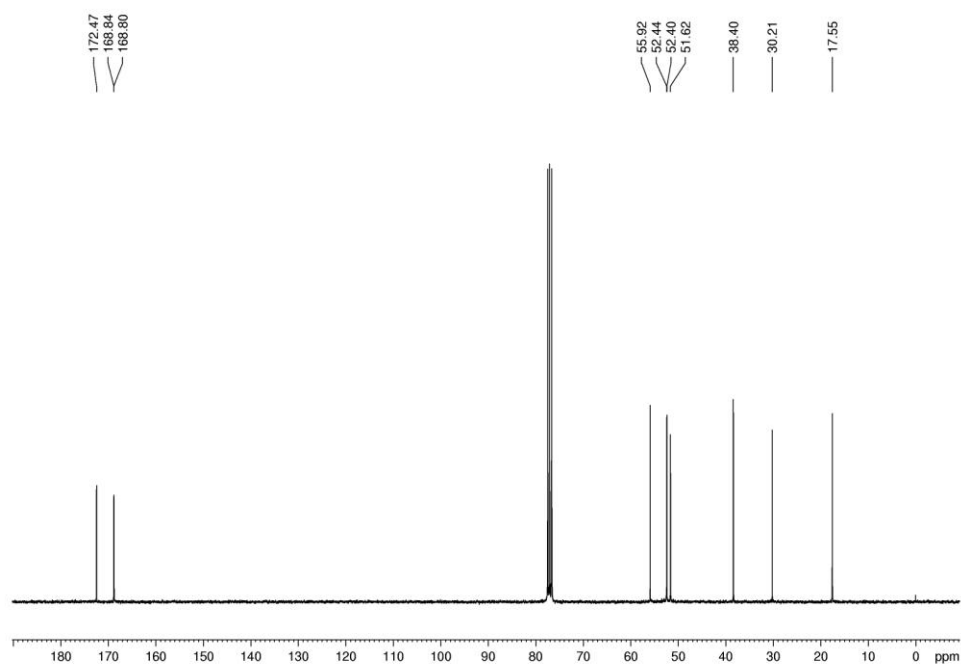
 ^{13}C NMR spectrum for **6a** ^1H NMR spectrum for **6b**



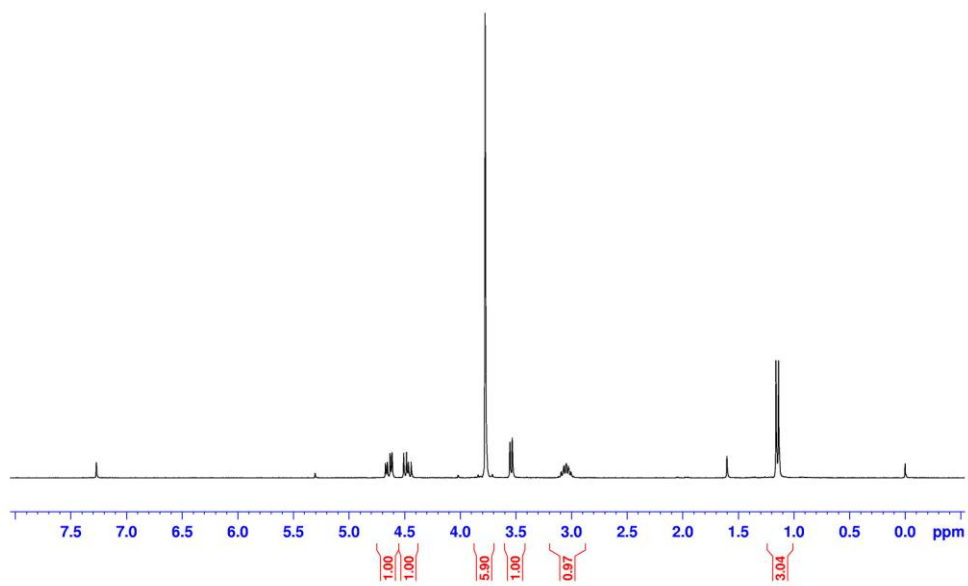
¹³C NMR spectrum for **6b**



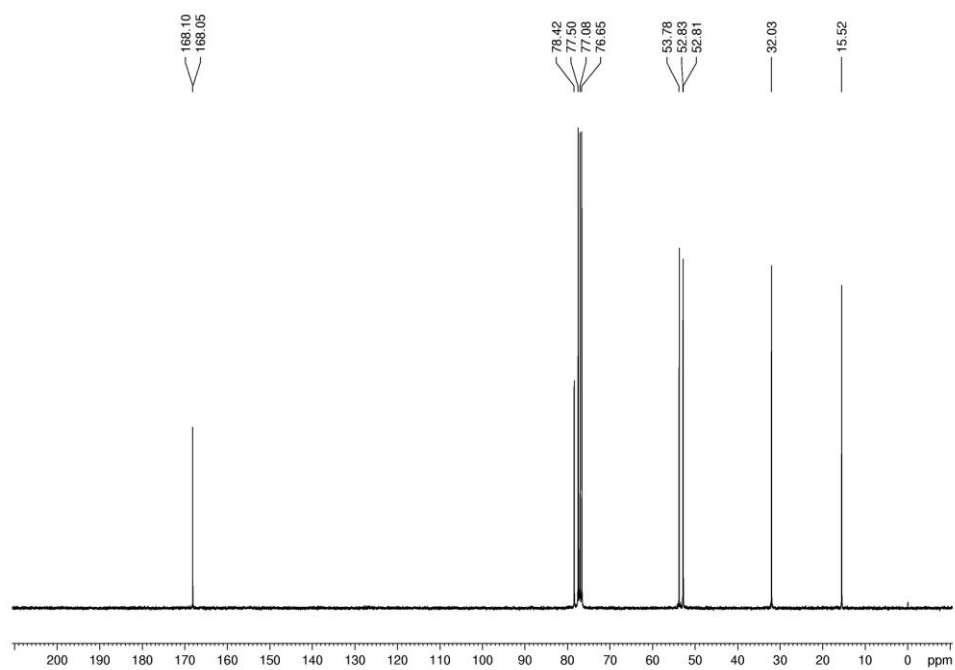
¹H NMR spectrum for **9**



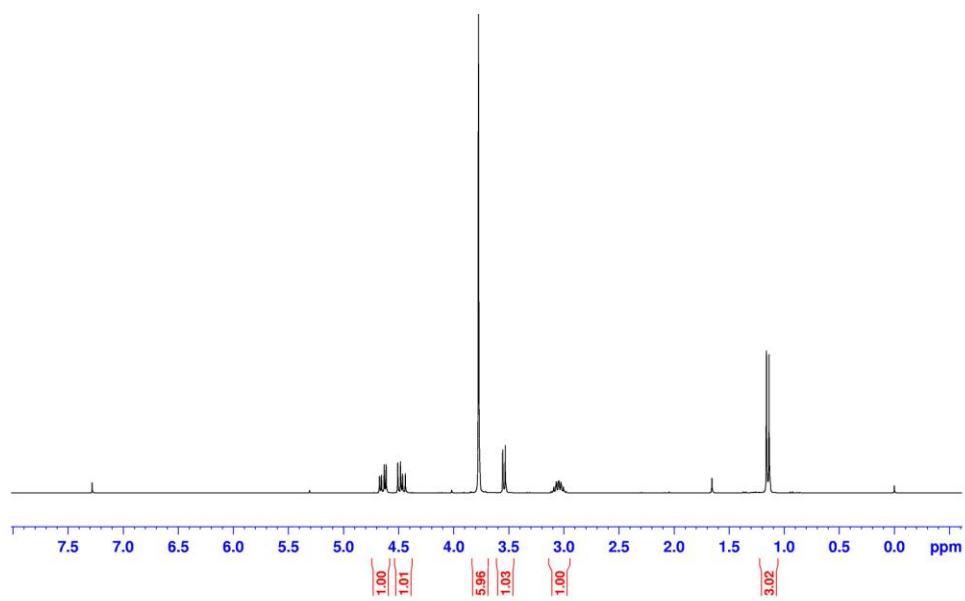
¹³C NMR spectrum for **9**



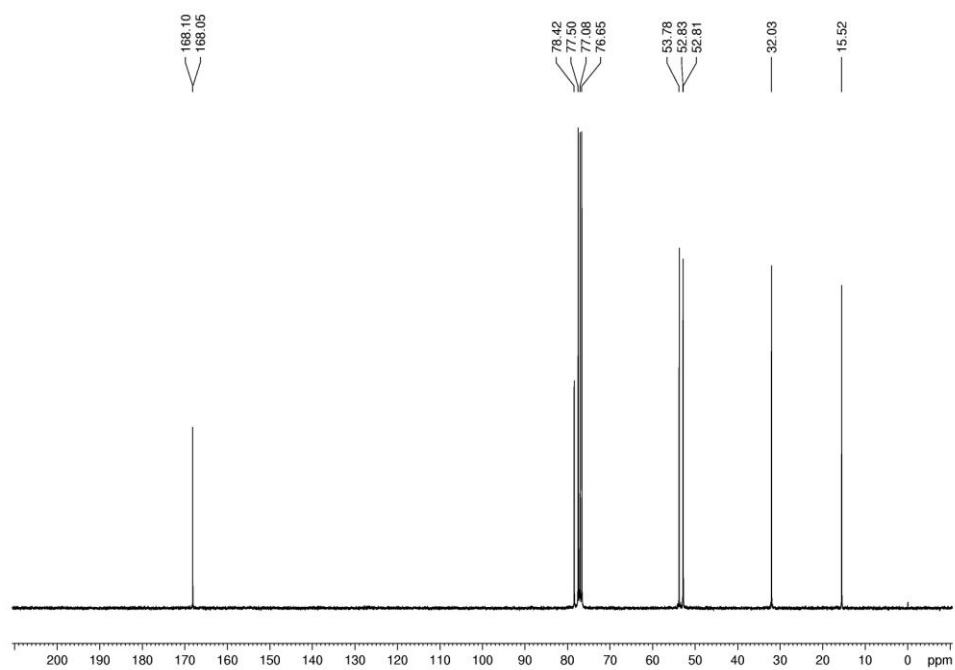
¹H NMR spectrum for **11a**



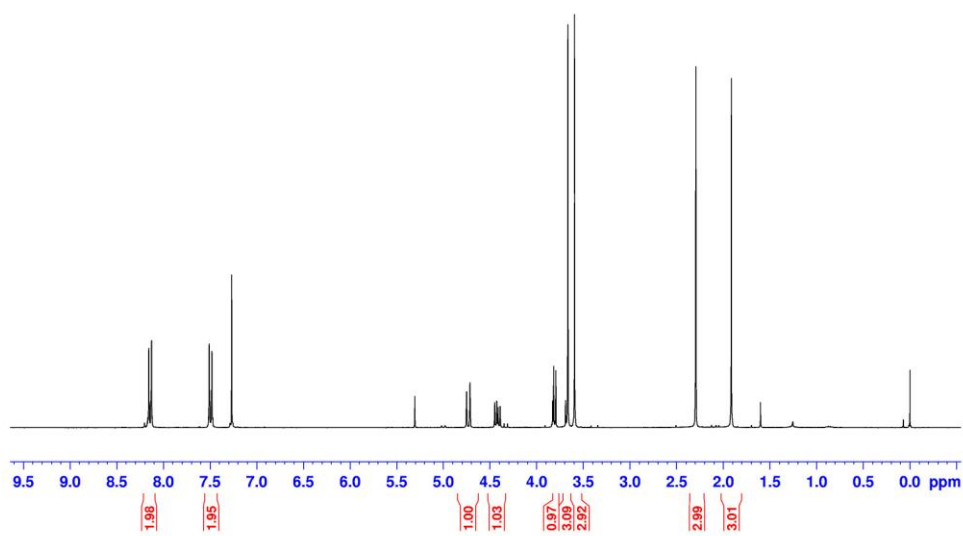
¹³C NMR spectrum for **11a**



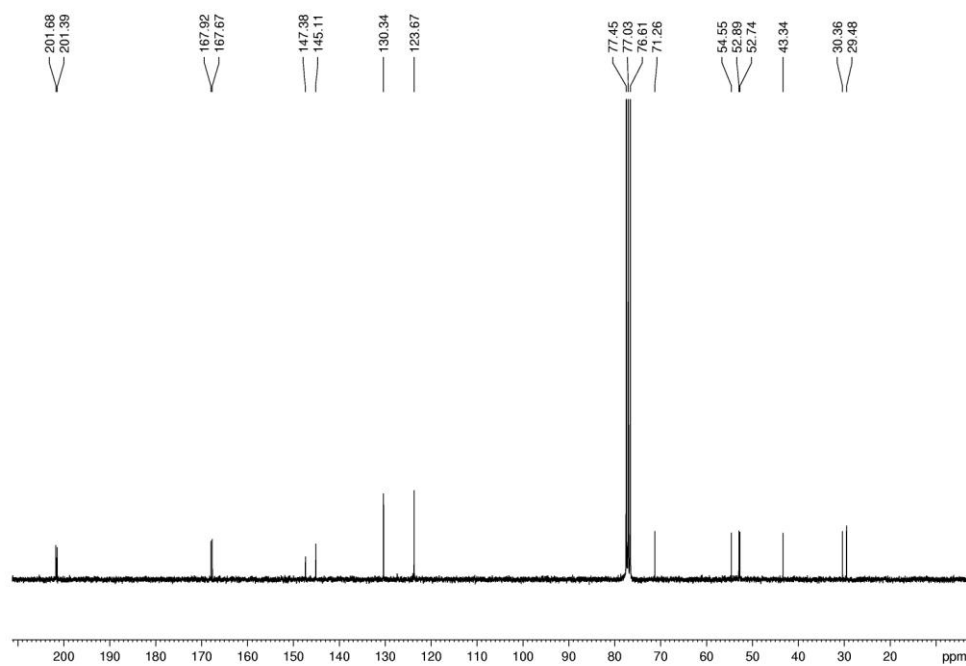
¹H NMR spectrum for **11b**



¹³C NMR spectrum for **11b**

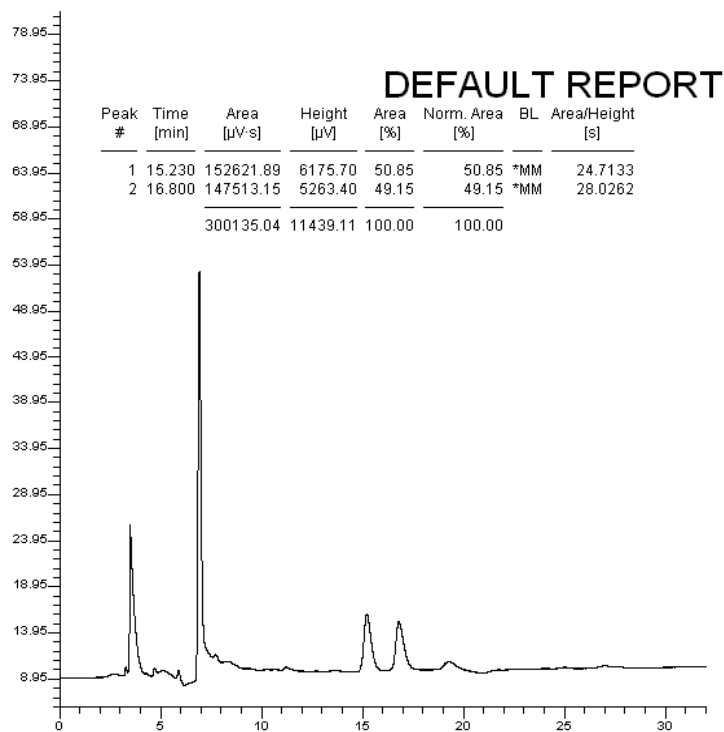


¹H NMR spectrum for **13b**

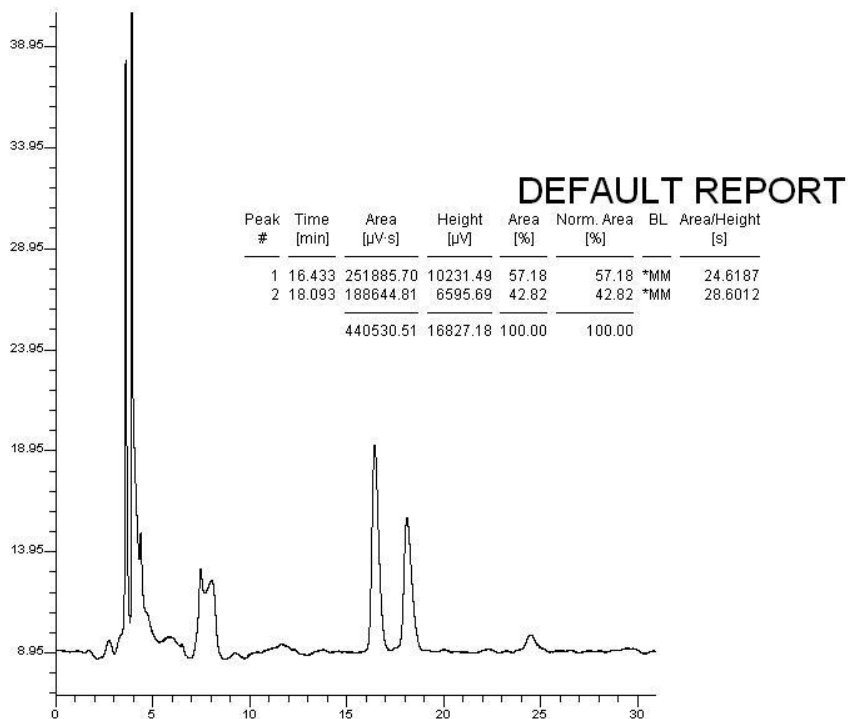
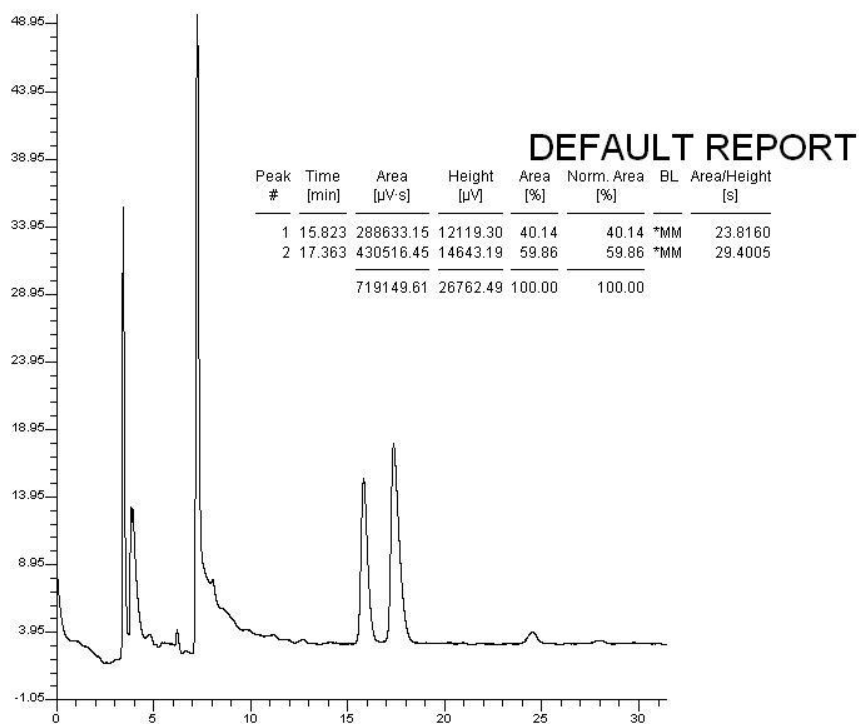


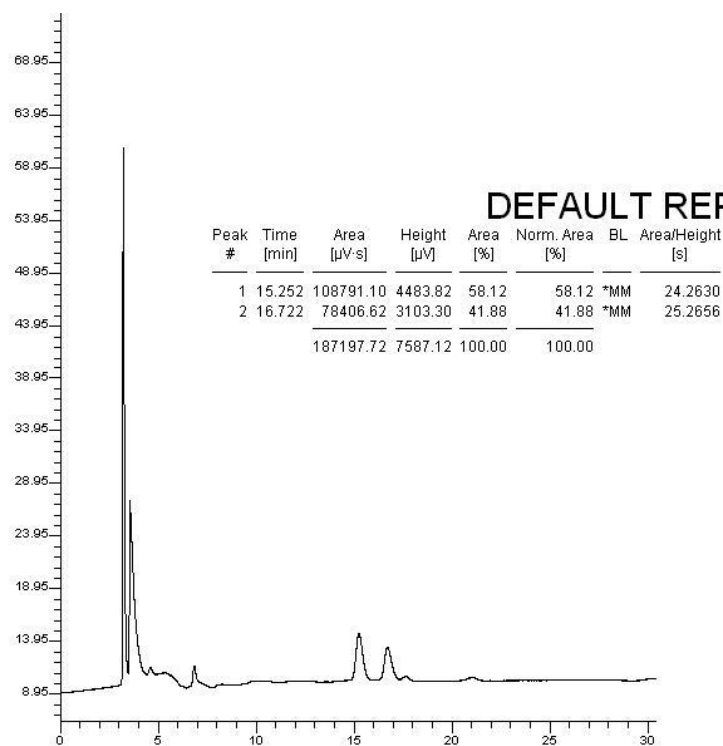
¹³C NMR spectrum for **13b**

HPLC Chromatograms

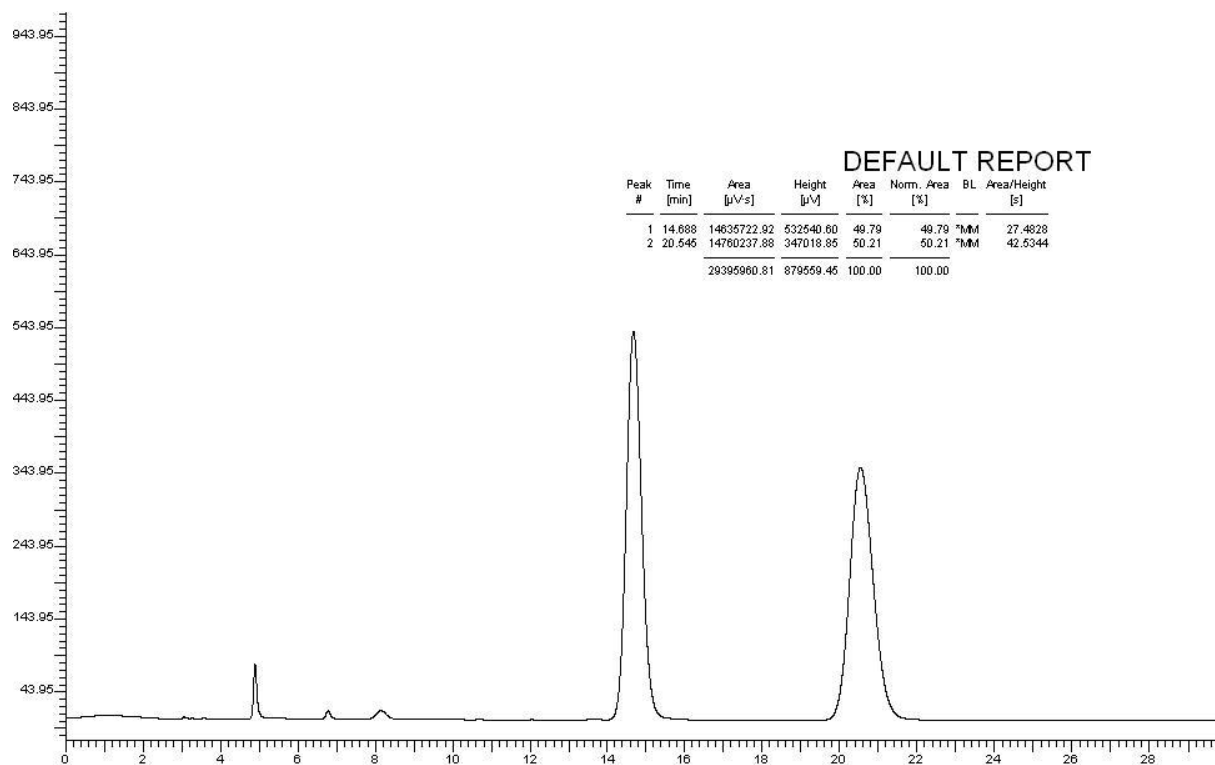
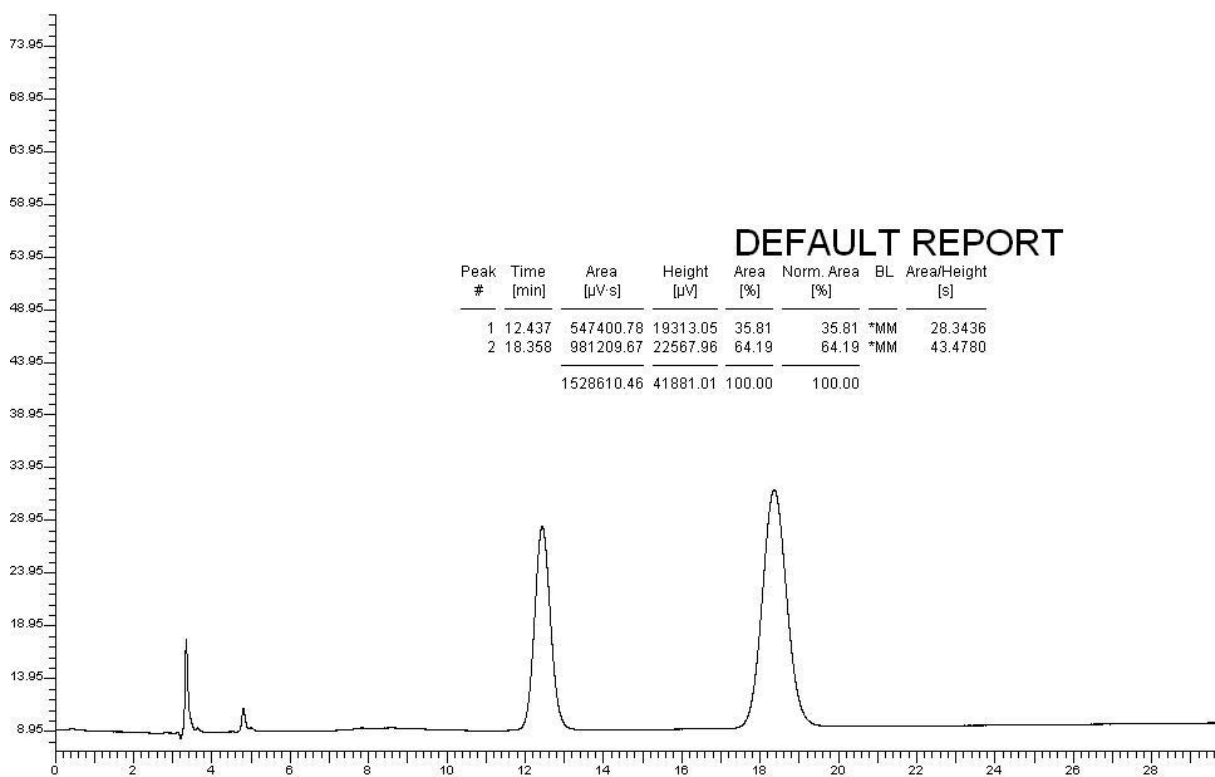


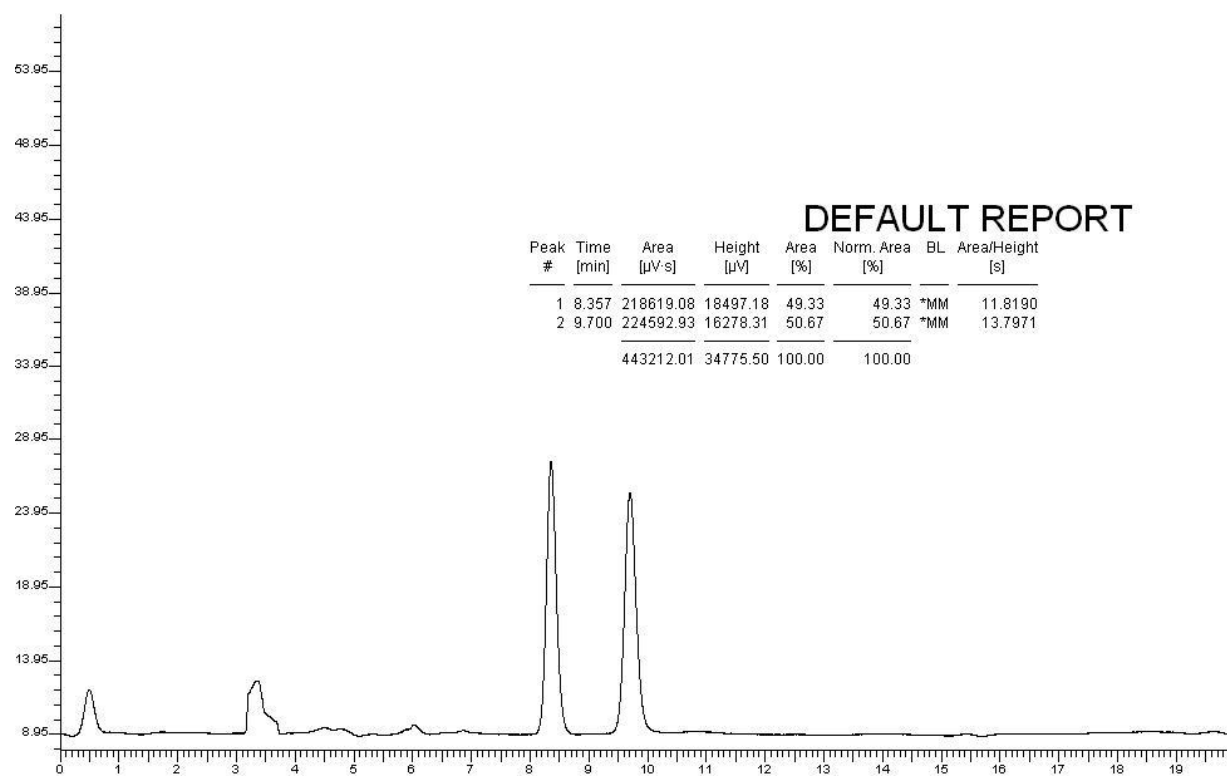
Racemic product **6a**

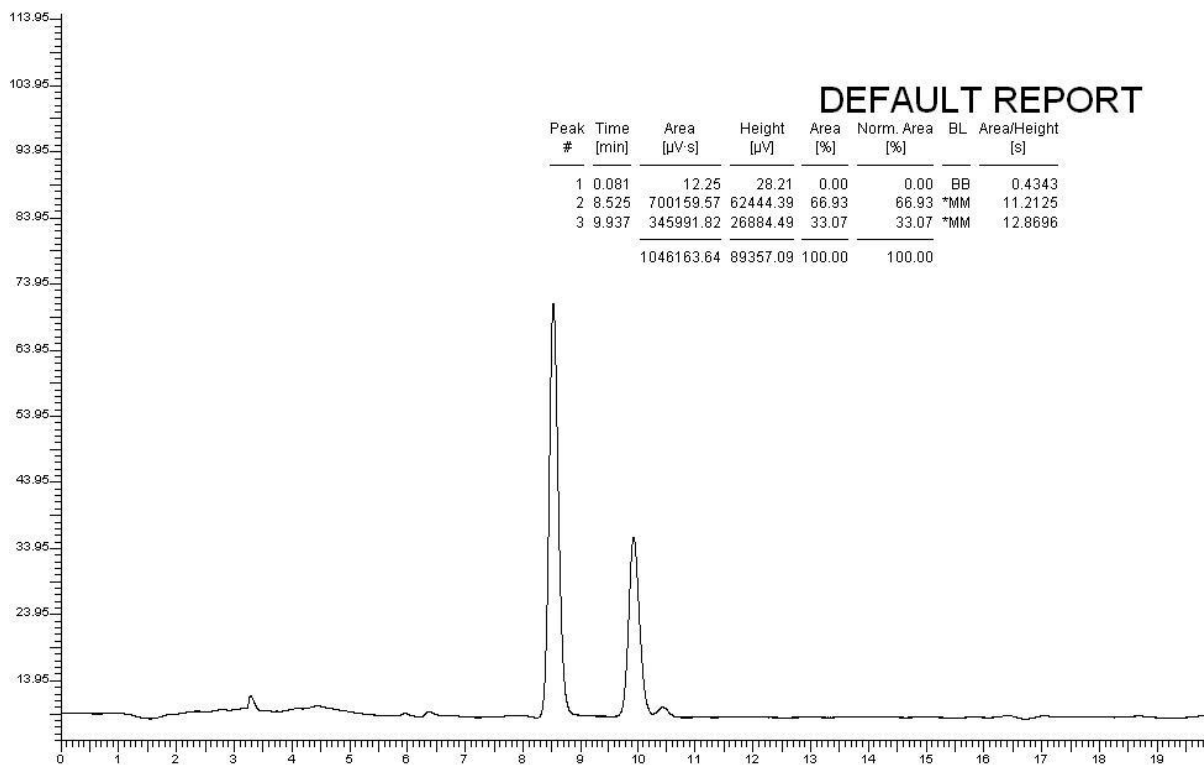
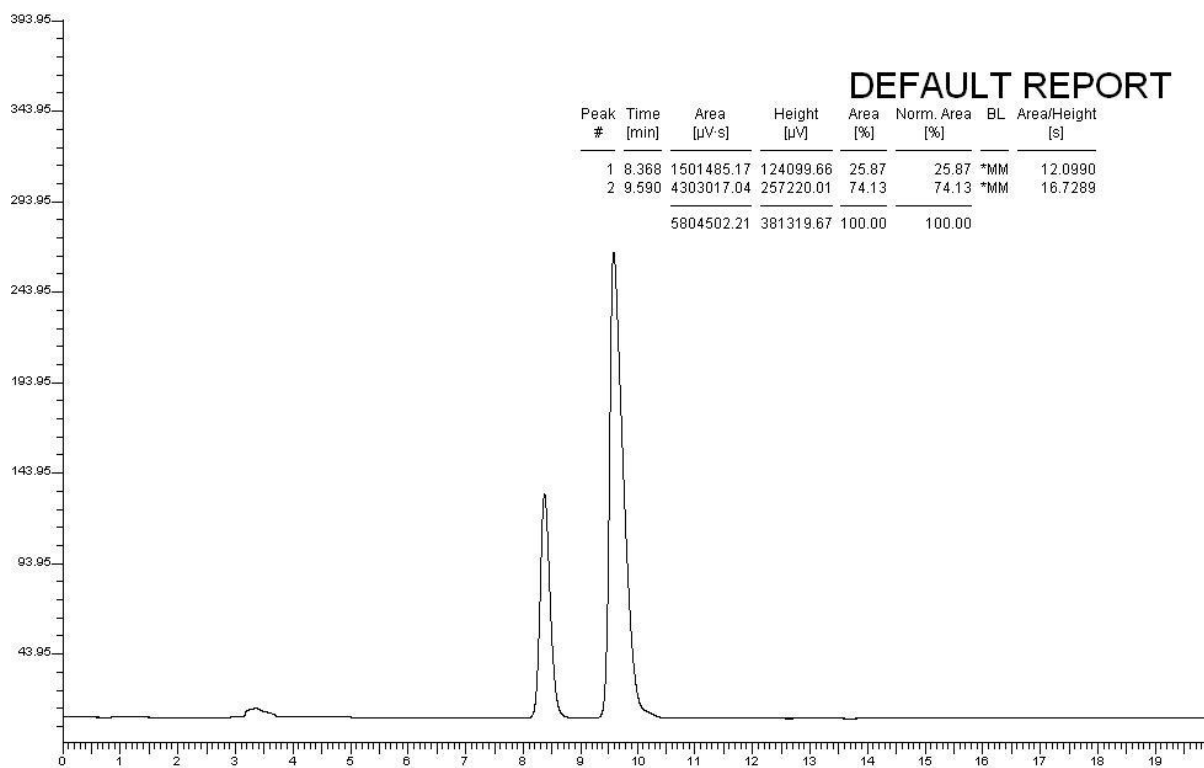
Product **6a** resulting from reaction catalysed by organocatalyst **1**Product **6a** resulting from reaction catalysed by organocatalyst **2**

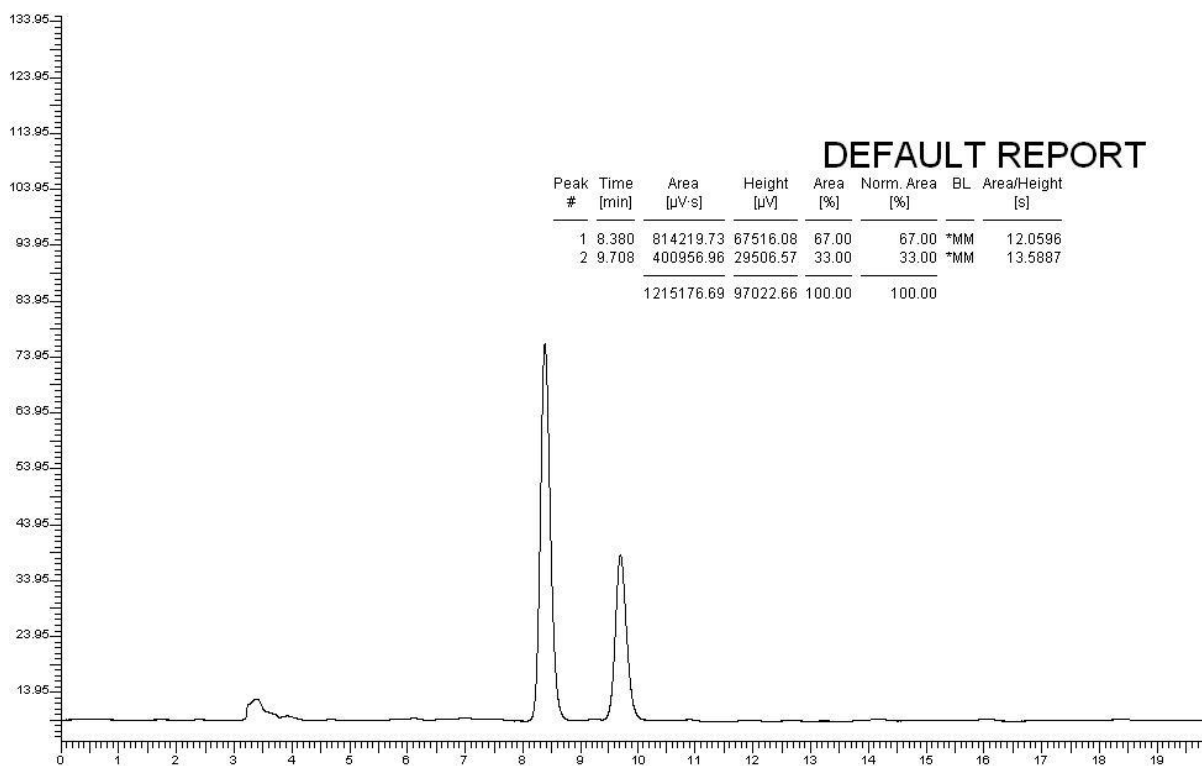


Product **6a** resulting from reaction catalysed by organocatalyst **3**

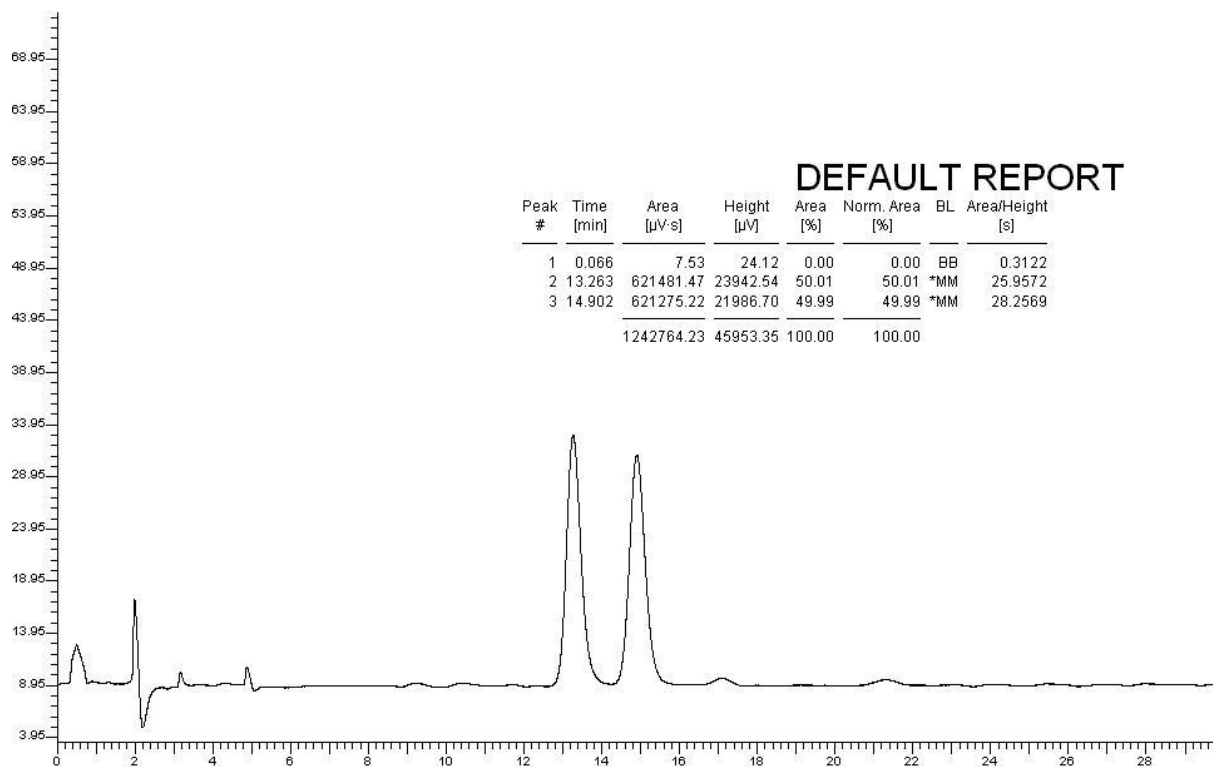
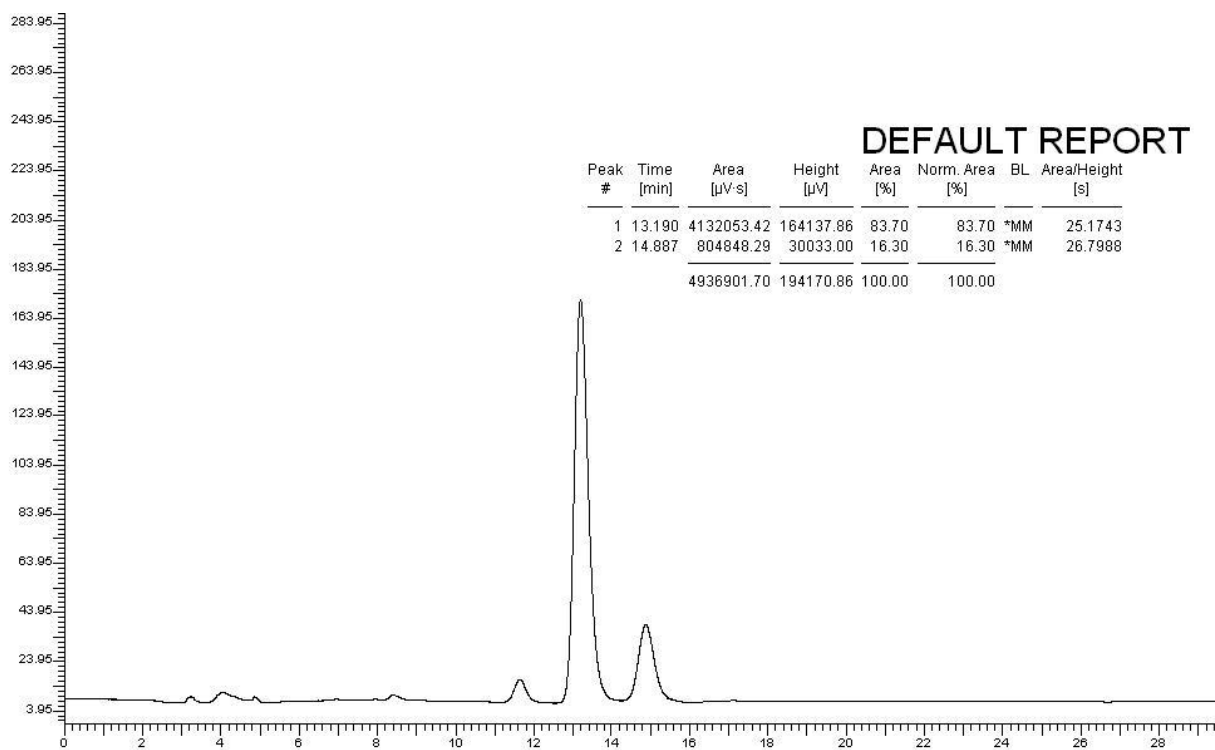
Racemic product **6b**Product **6b** resulting from reaction catalysed by organocatalyst **2**

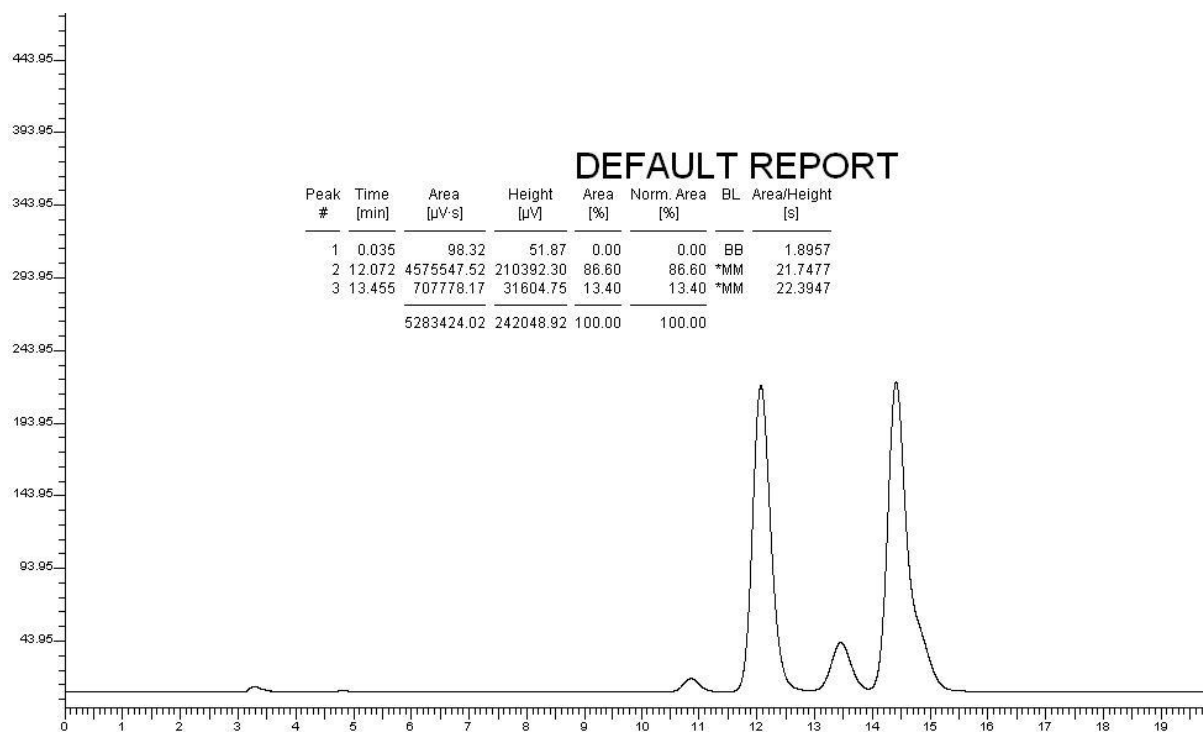
Racemic product **11a**

Product **11a** resulting from reaction catalysed by organocatalyst **1**Product **11a** resulting from reaction catalysed by organocatalyst **2**

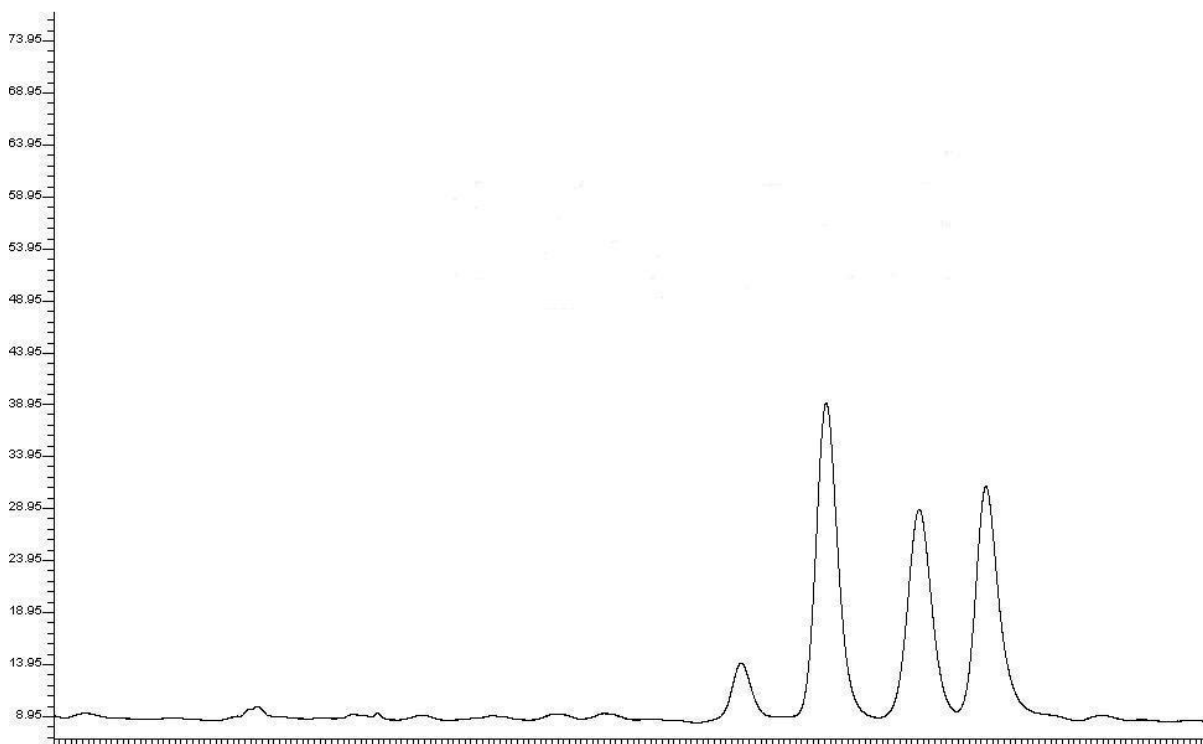


Product **11a** resulting from reaction catalysed by organocatalyst **3**

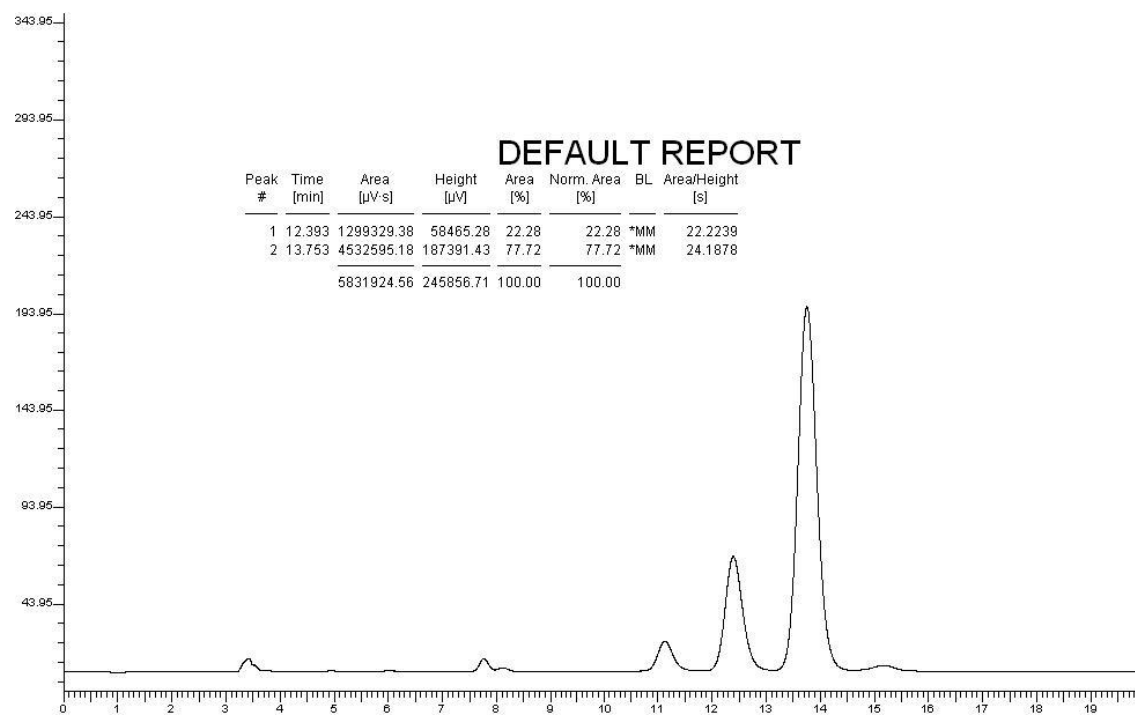
Racemic product **13b**Product **13b** resulting from reaction catalysed by organocatalyst **1**



Product **13b** resulting from reaction catalysed by organocatalyst **2**



Product **13b** resulting from reaction catalysed by organocatalyst **2** and subsequently spiked with racemic product



Product **13b** resulting from reaction catalysed by organocatalyst **3**