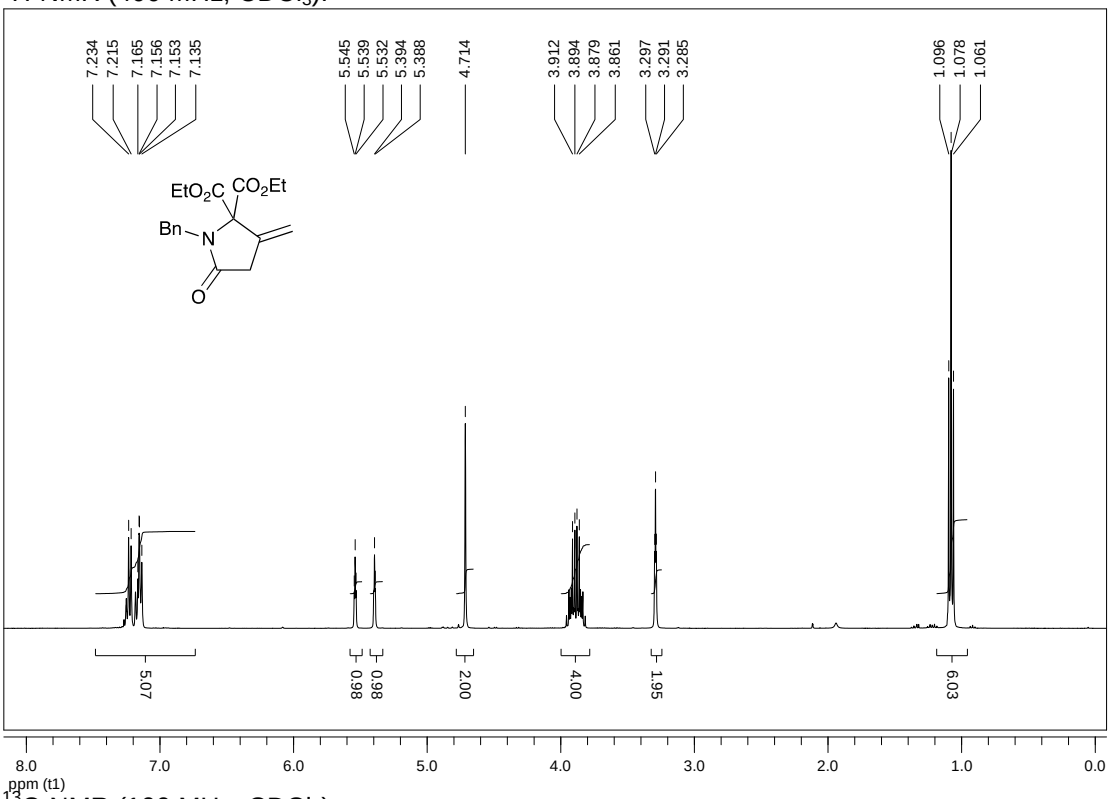
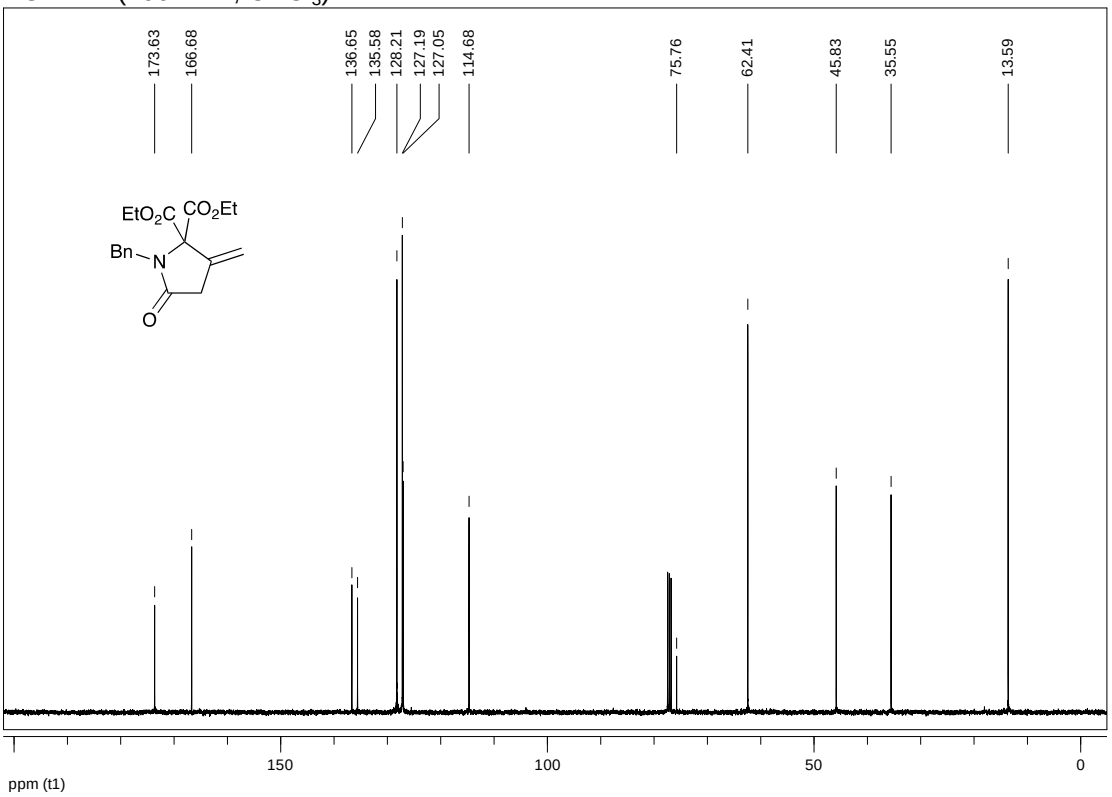
5. NMR spectra of the cyclisation reactions

Diethyl 1-benzyl-3-methylene-5-oxopyrrolidine-2,2-dicarboxylate 8a

^{1}H-NMR (400 MHz, $CDCl_3$):

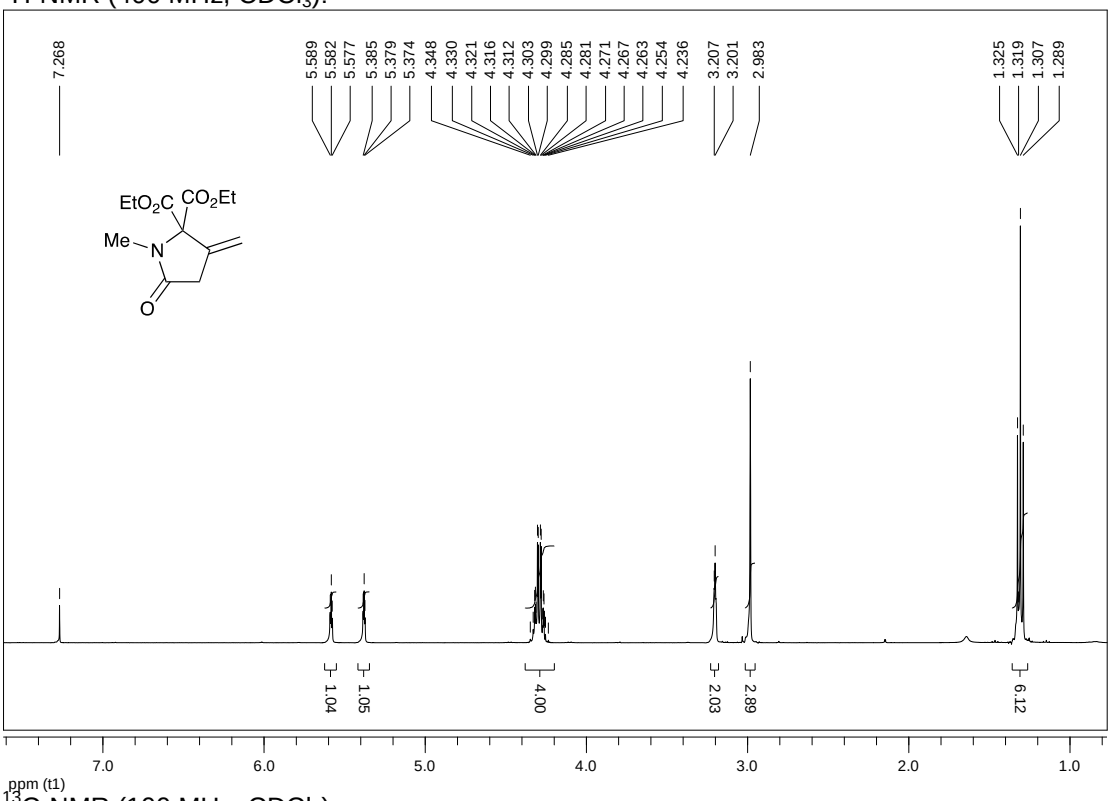


^{13}C-NMR (100 MHz, $CDCl_3$):

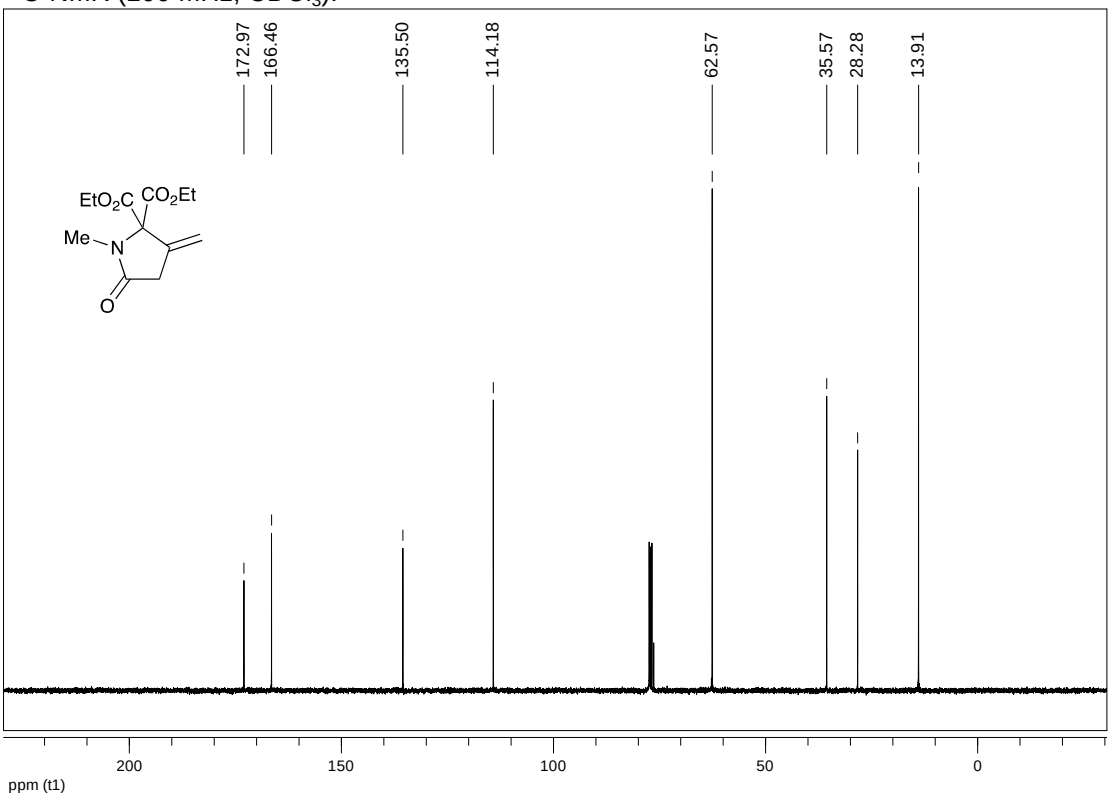


Diethyl 1-methyl-3-methylene-5-oxopyrrolidine-2,2-dicarboxylate 8b

^{1}H-NMR (400 MHz, $CDCl_3$):

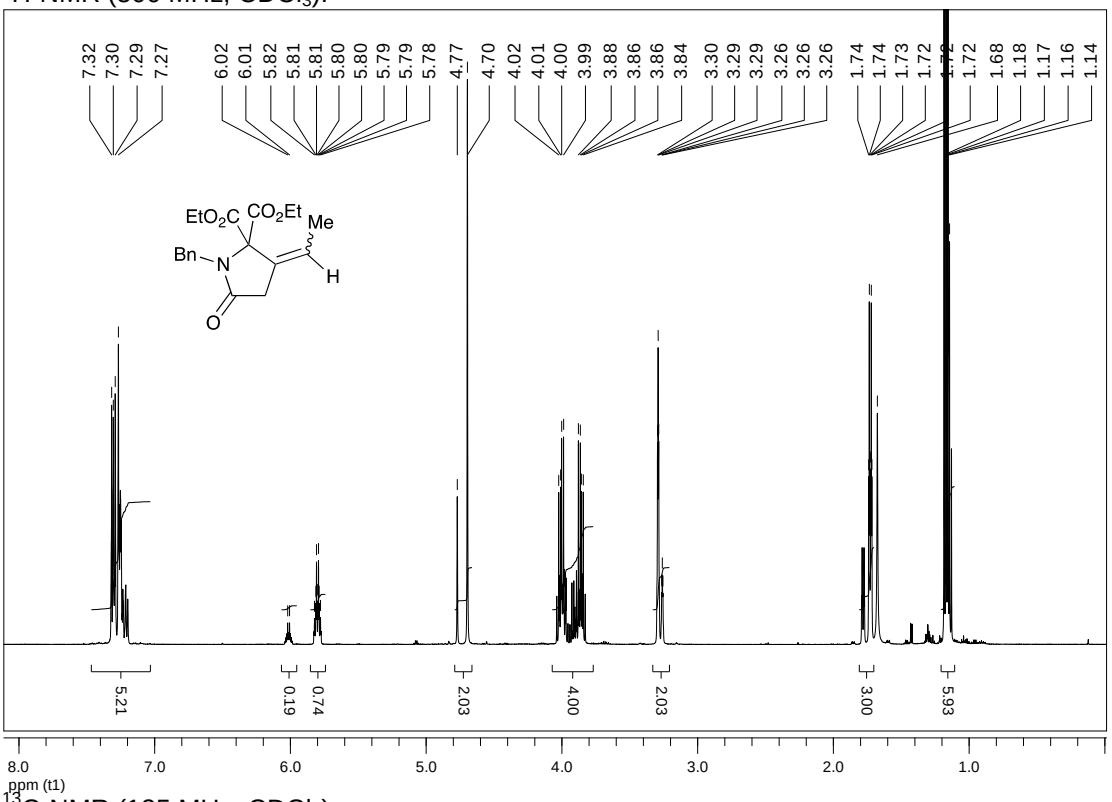


^{13}C-NMR (100 MHz, $CDCl_3$):

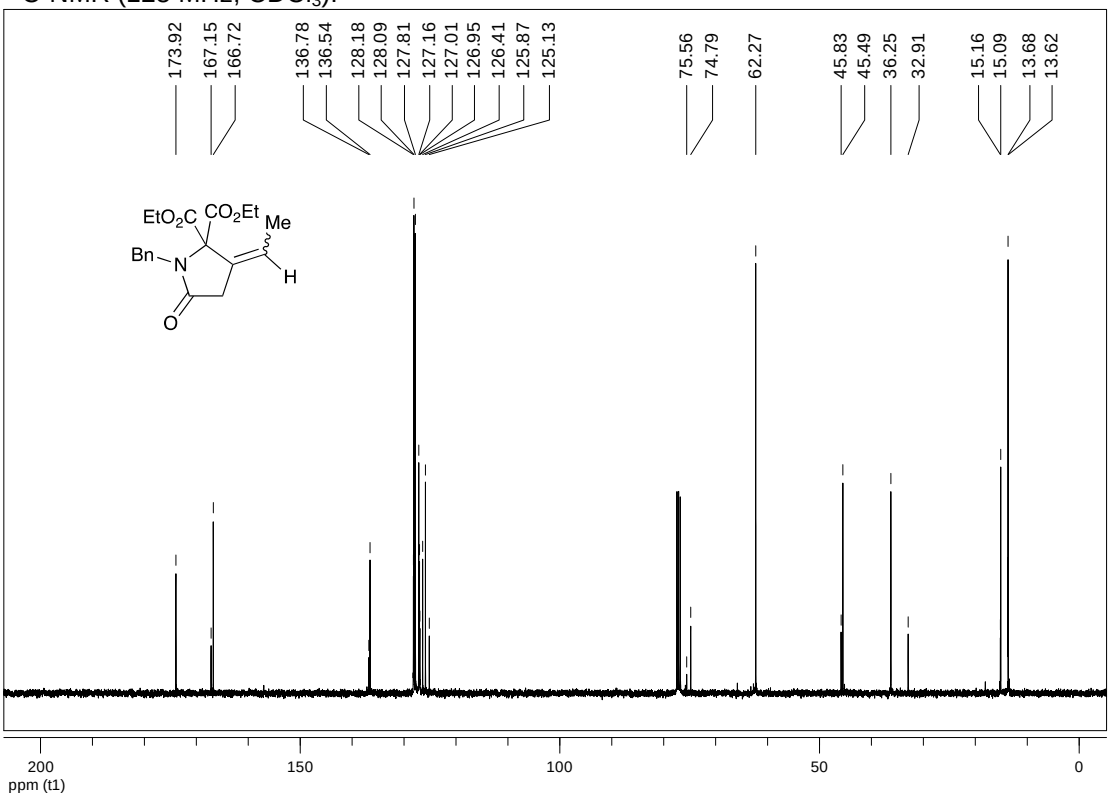


Diethyl 3-ethylidene-1-methyl-5-oxopyrrolidine-2,2-dicarboxylate 10a – 3.8:1 *Z*:*E* mixture of diastereomers

^{1}H-NMR (500 MHz, $CDCl_3$):

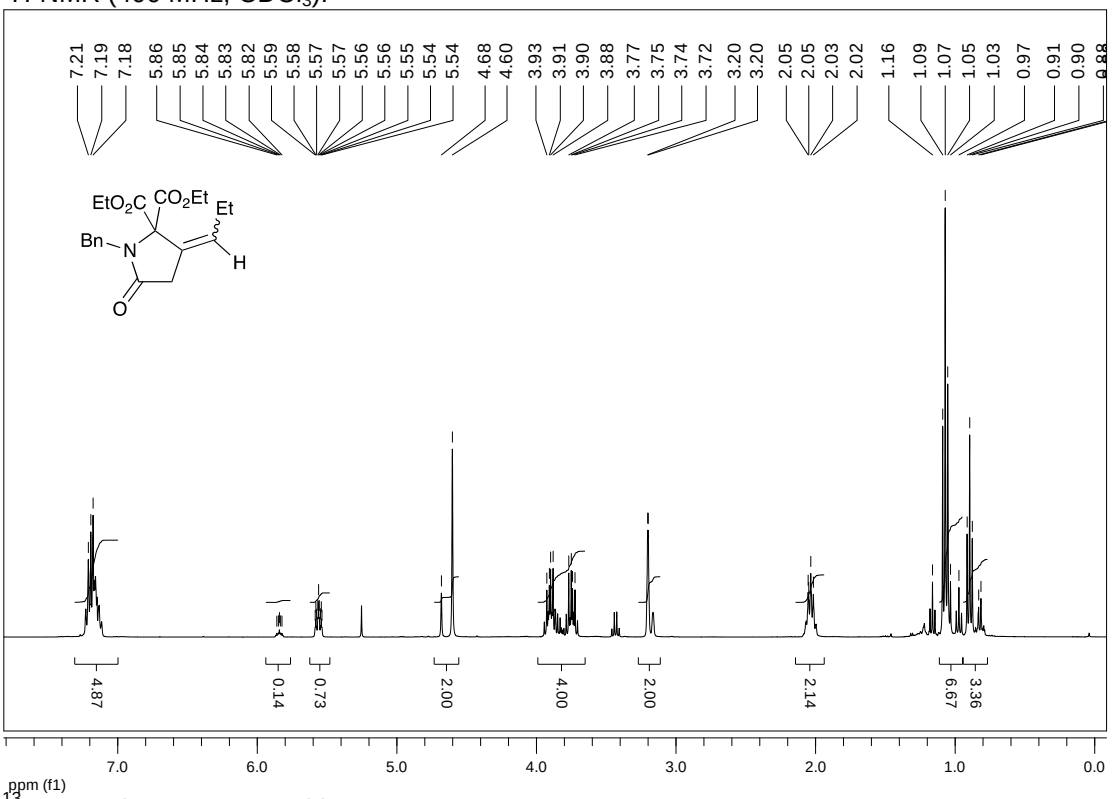


^{13}C-NMR (125 MHz, $CDCl_3$):

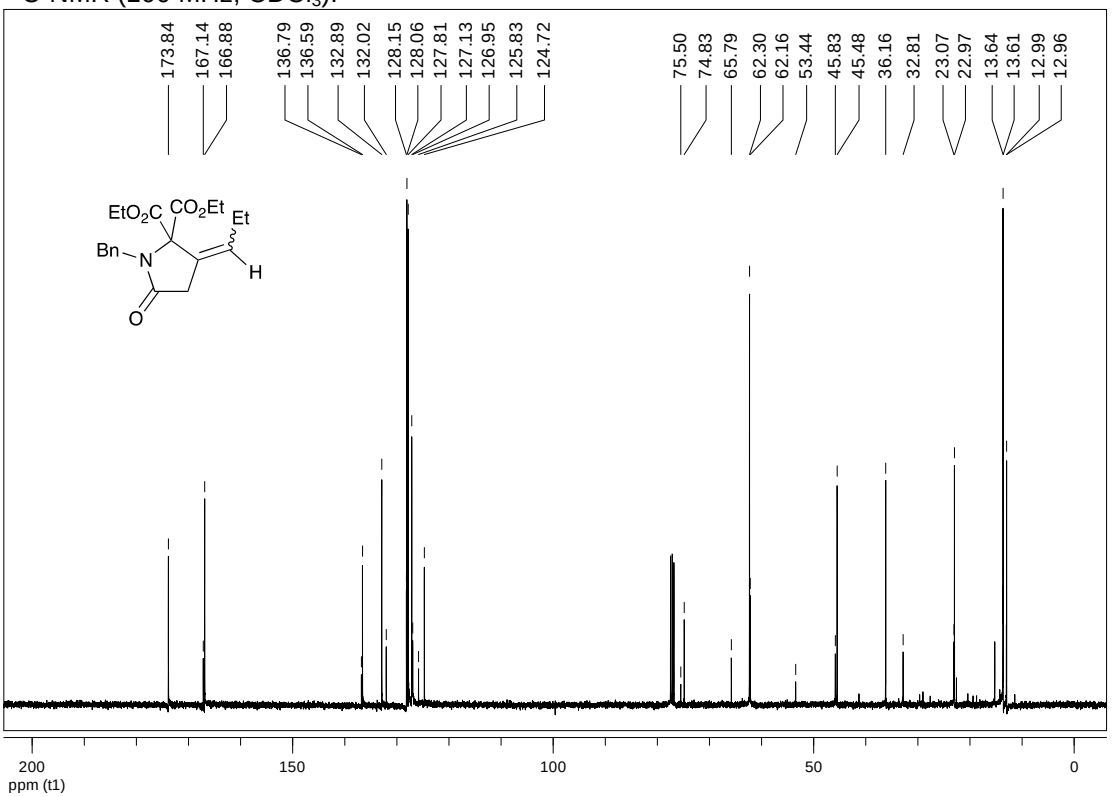


Diethyl 1-benzyl-5-oxo-3-propylidenepyrrolidine-2,2-dicarboxylate 10b – 4.7:1 *Z*:*E* mixture of diastereomers

^{1}H-NMR (400 MHz, $CDCl_3$):

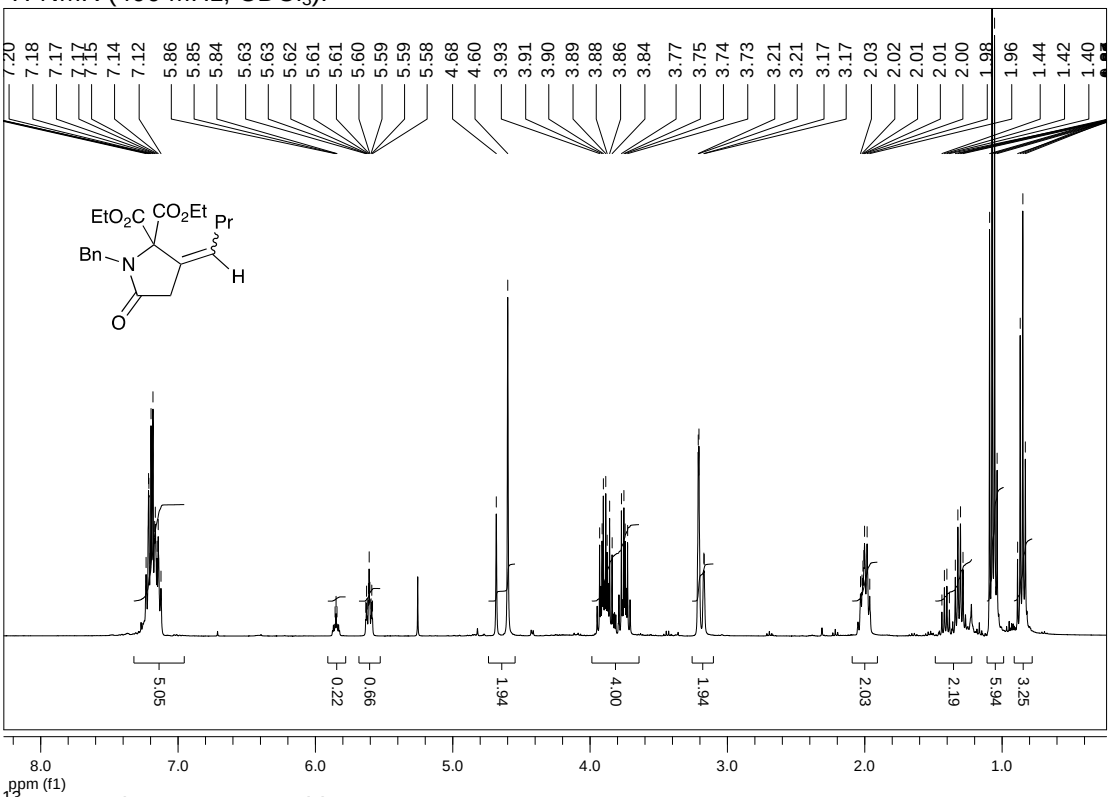


^{13}C-NMR (100 MHz, $CDCl_3$):

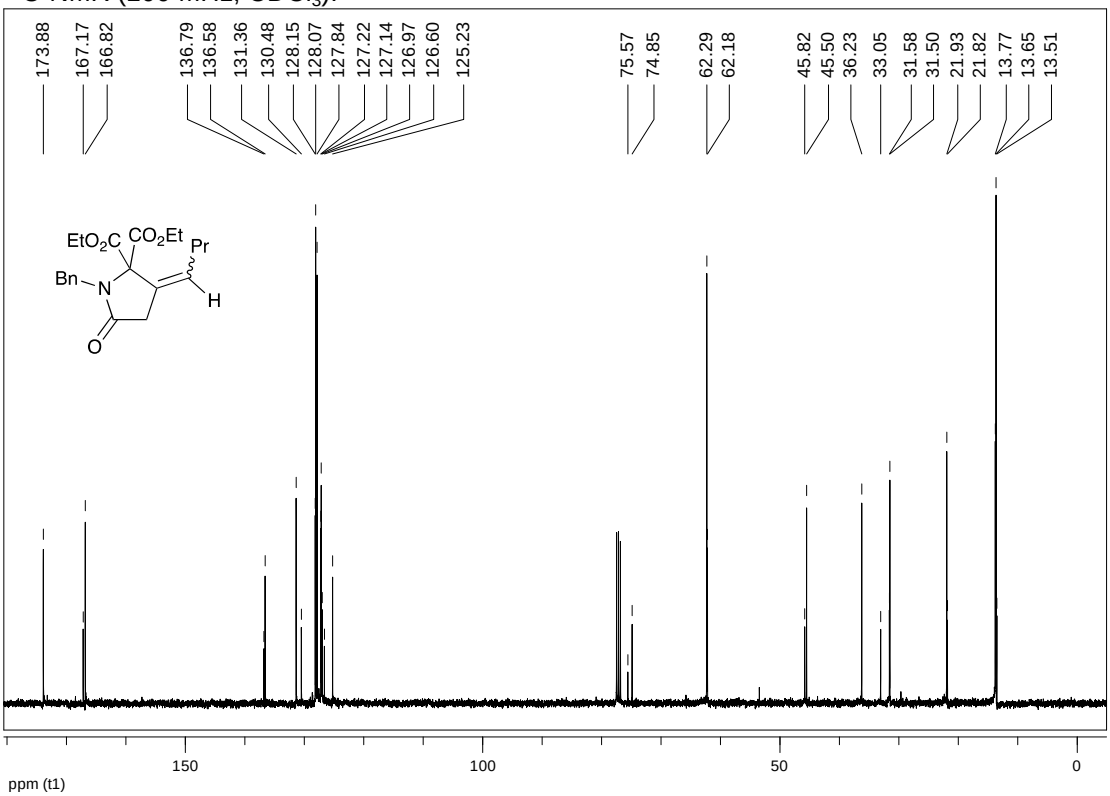


Diethyl 1-benzyl-5-oxo-3-butylidenepyrrolidine-2,2-dicarboxylate 10c – 2.9:1 *Z*:*E* mixture of diastereomers

^{1}H-NMR (400 MHz, $CDCl_3$):

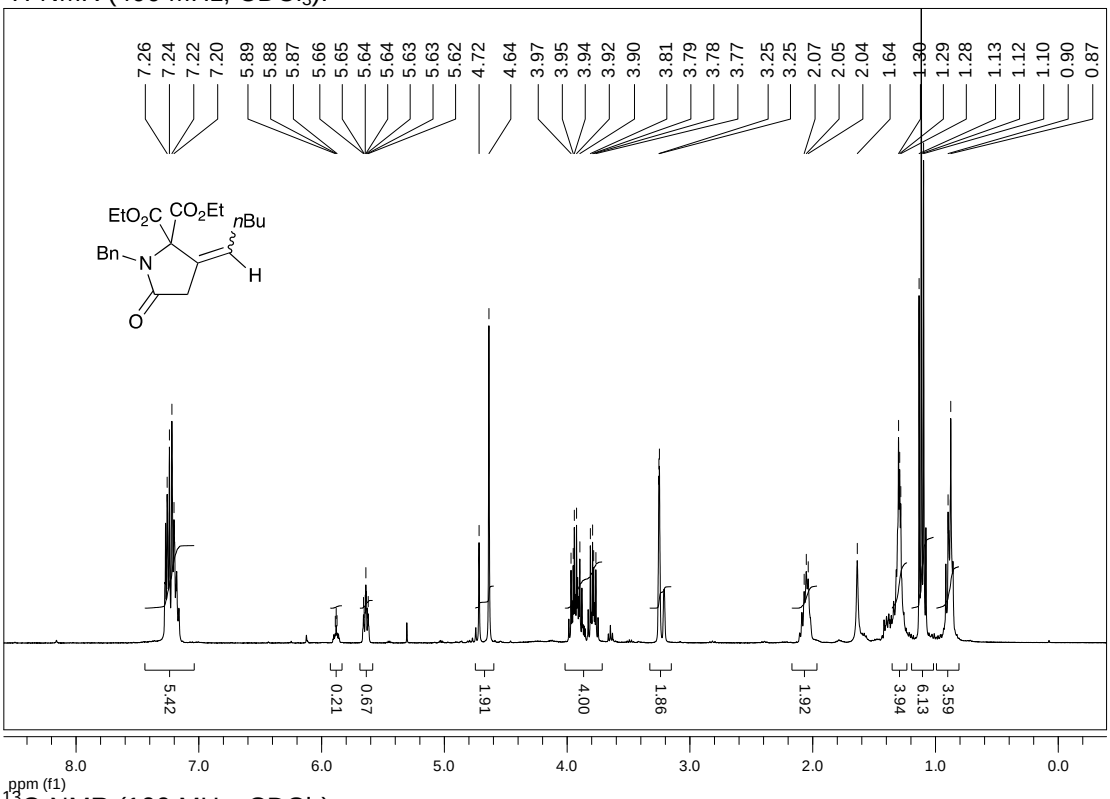


^{13}C-NMR (100 MHz, $CDCl_3$):

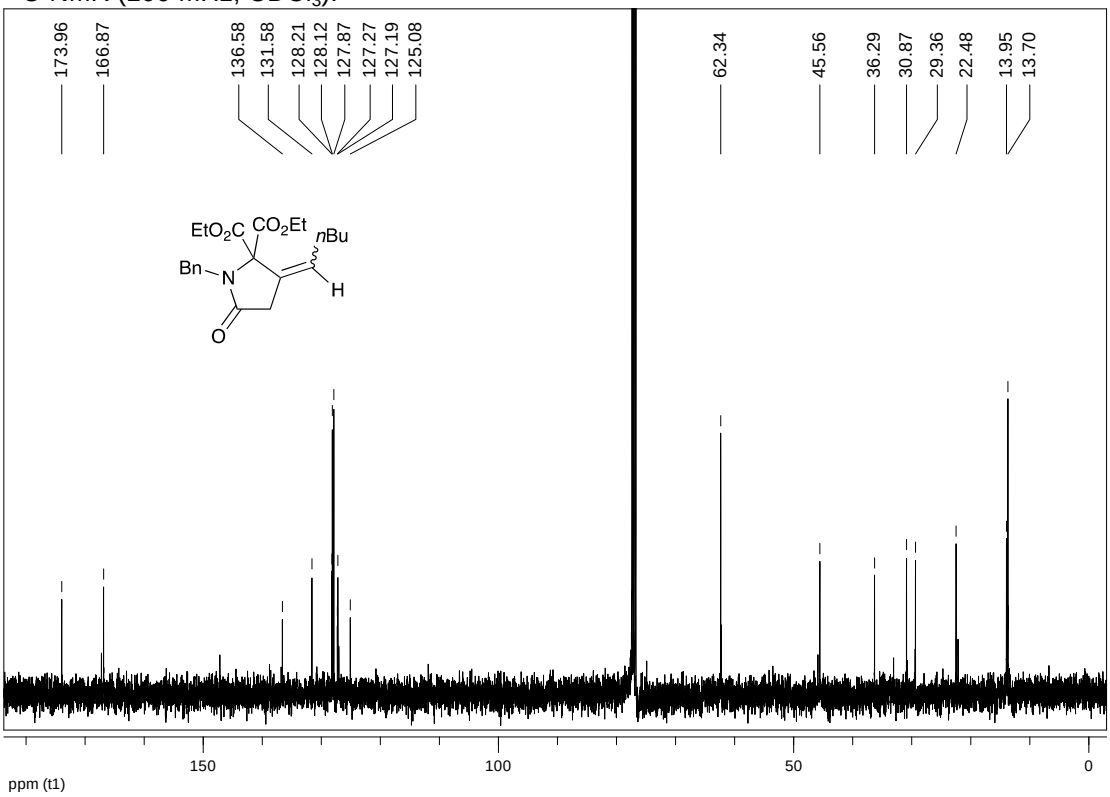


Diethyl 1-benzyl-5-oxo-3-pentylidenepyrrolidine-2,2-dicarboxylate 10d – 3.0:1 *Z*:*E* mixture of diastereomers

^{1}H-NMR (400 MHz, $CDCl_3$):

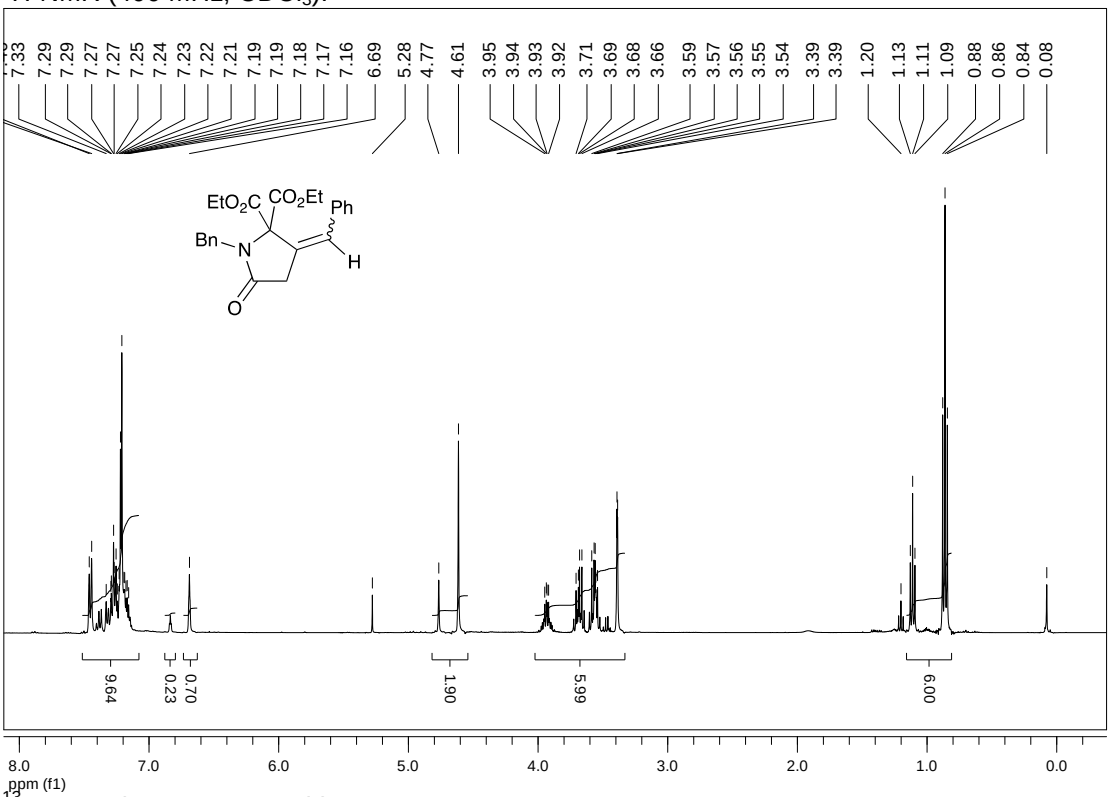


^{13}C-NMR (100 MHz, $CDCl_3$):

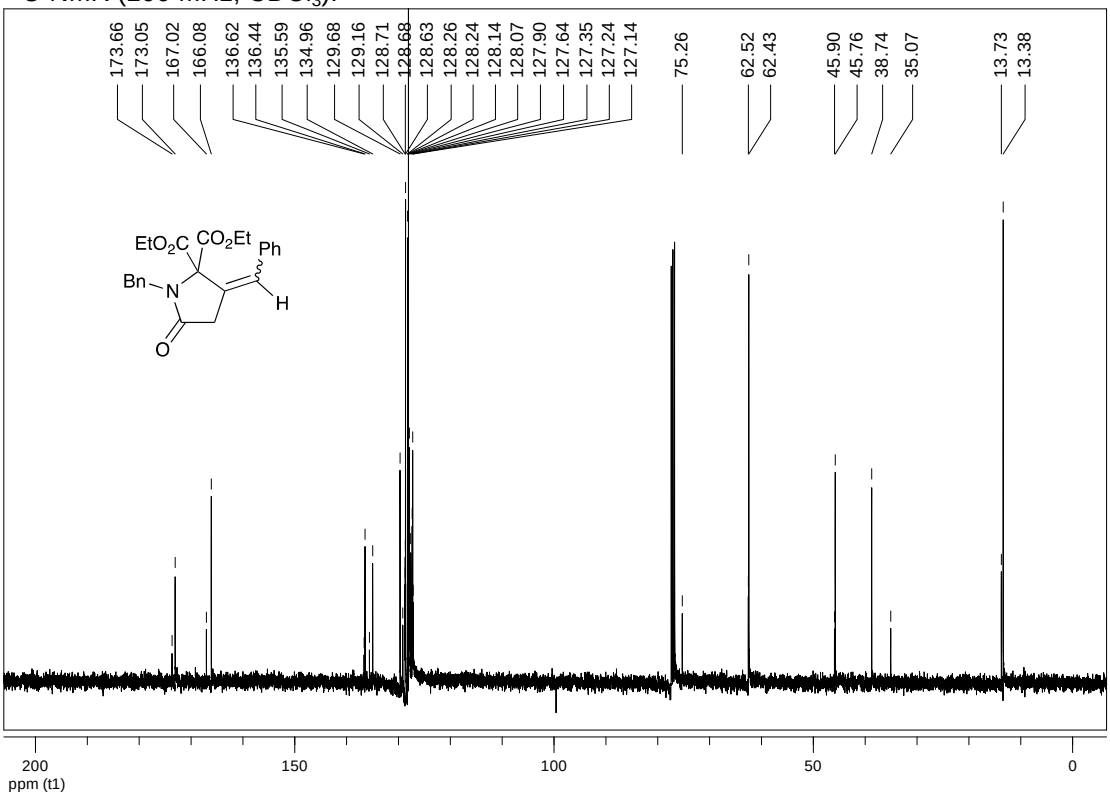


Diethyl 1-benzyl-3-benzylidene-5-oxopyrrolidine-2,2-dicarboxylate 10e – 3.0:1 *Z*:*E* mixture of diastereomers

^{1}H-NMR (400 MHz, $CDCl_3$):

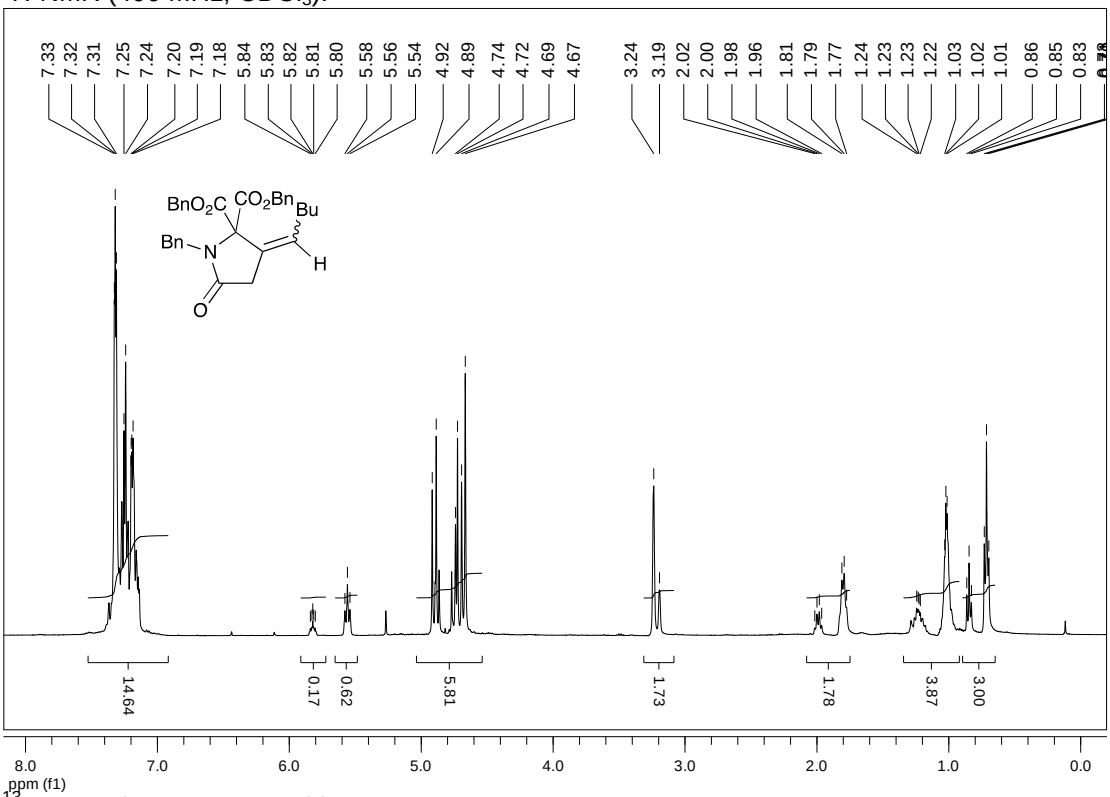


^{13}C-NMR (100 MHz, $CDCl_3$):

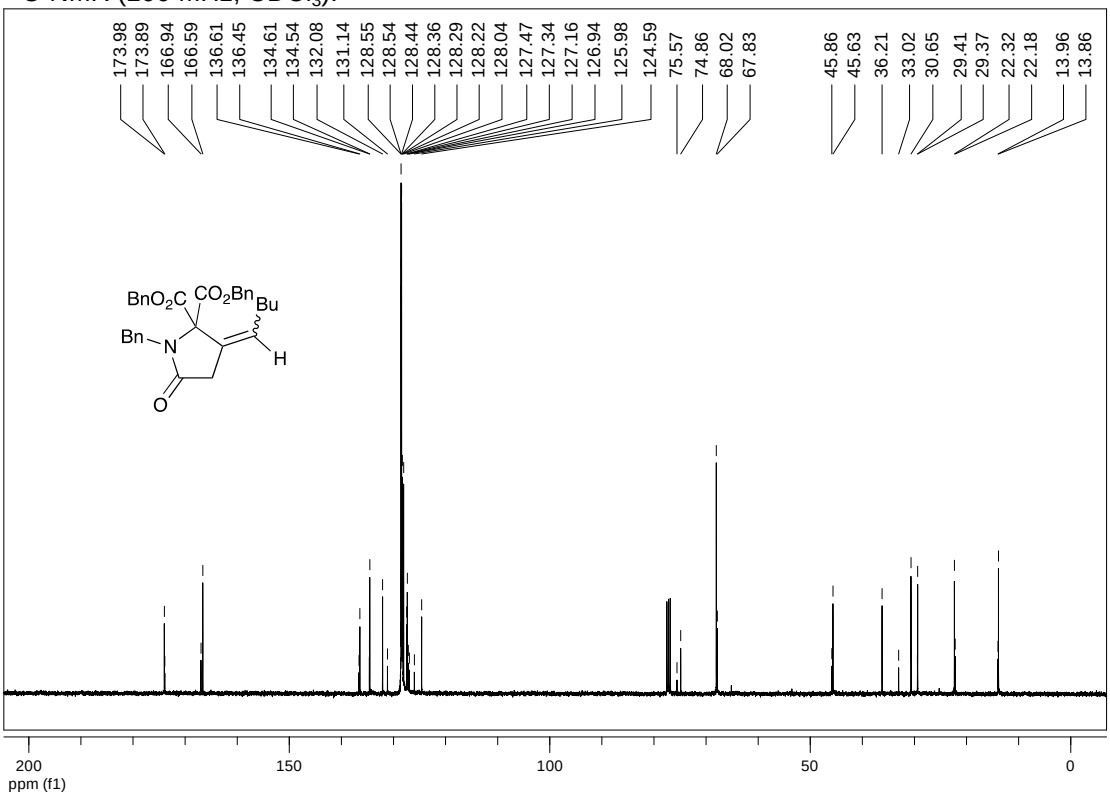


Dibenzyl 1-benzyl-5-oxo-3-pentylidenepyrrolidine-2,2-dicarboxylate 12 – 3.5:1 *Z*:*E* mixture of diastereomers

^{1}H-NMR (400 MHz, $CDCl_3$):

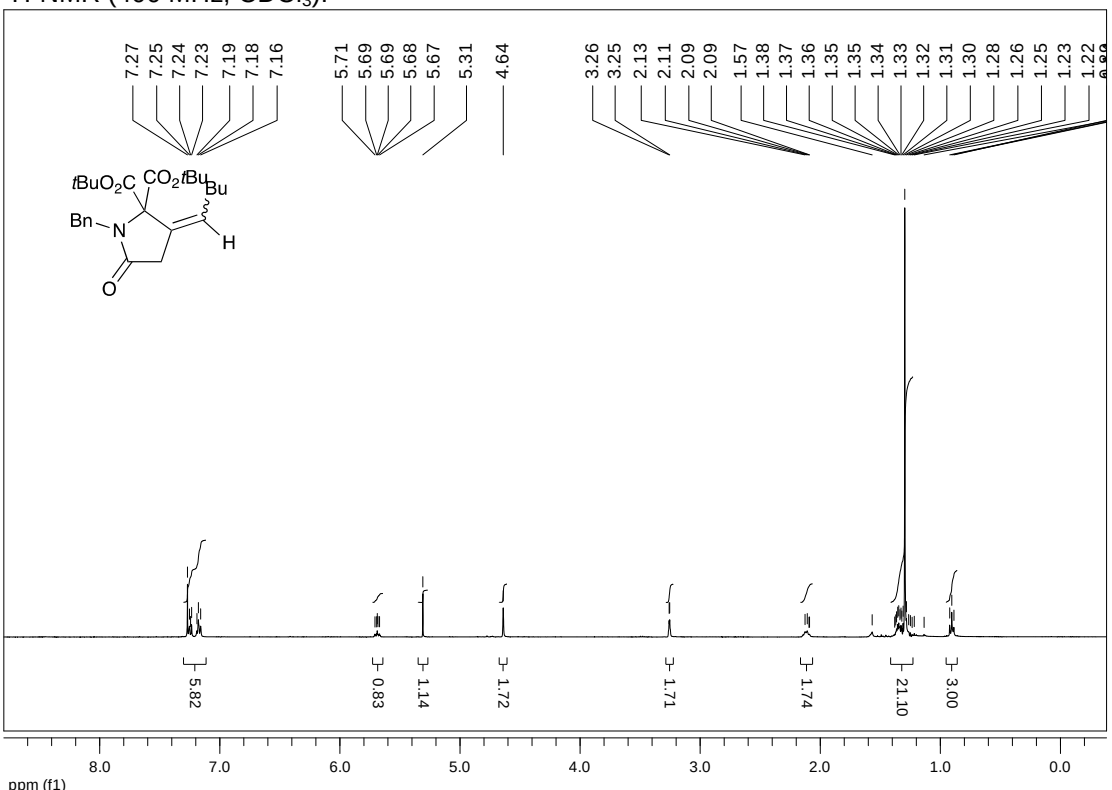


^{13}C-NMR (100 MHz, $CDCl_3$):

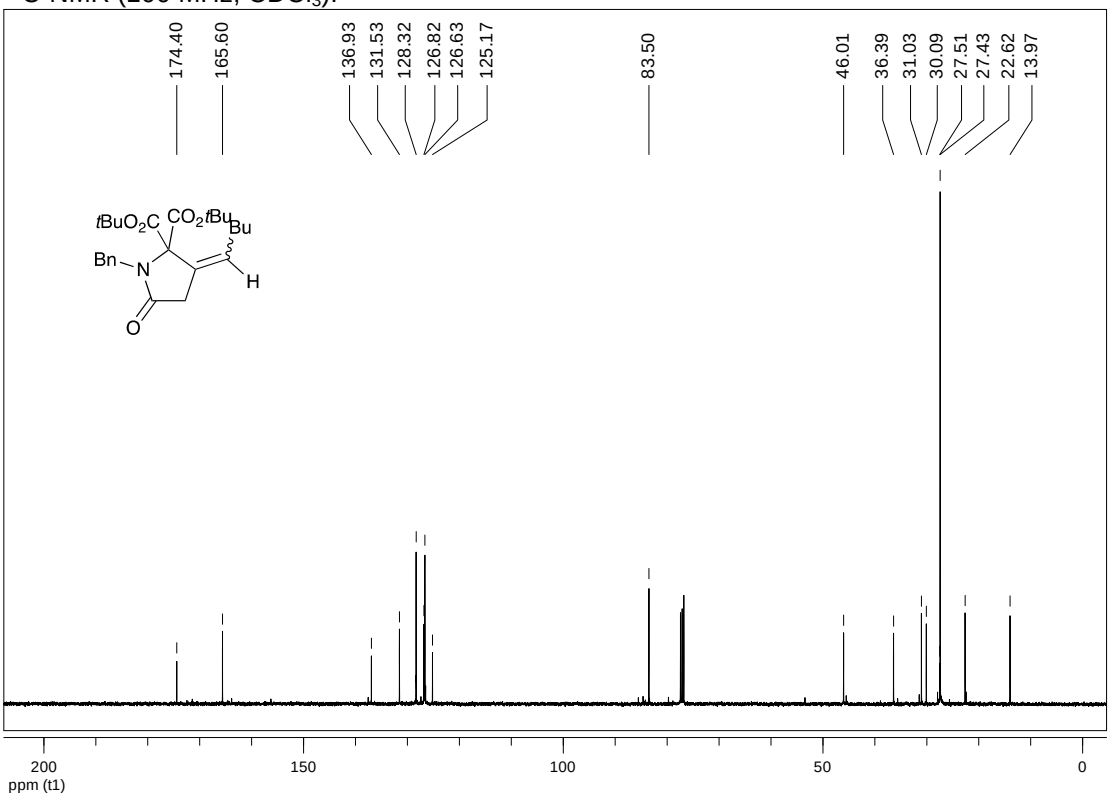


Di-*tert*-butyl 1-benzyl-5-oxo-3-pentylidenepyrrolidine-2,2-dicarboxylate 14

^{1}H-NMR (400 MHz, $CDCl_3$):

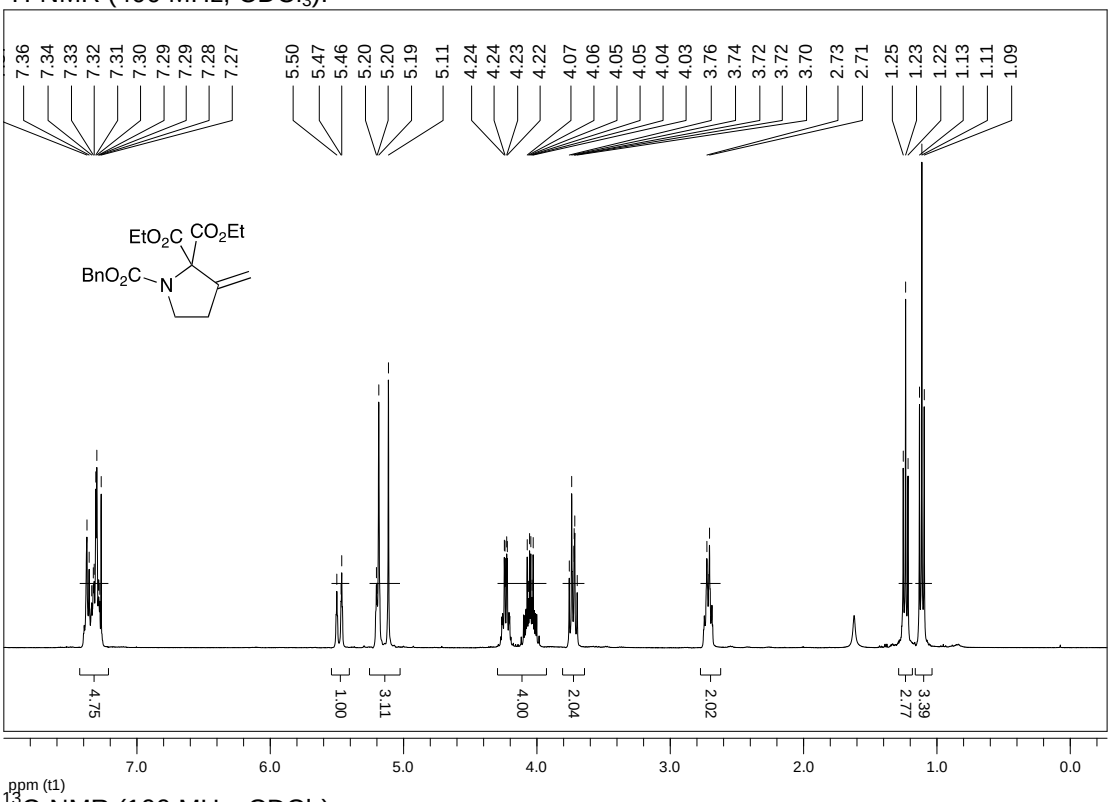


^{13}C-NMR (100 MHz, $CDCl_3$):

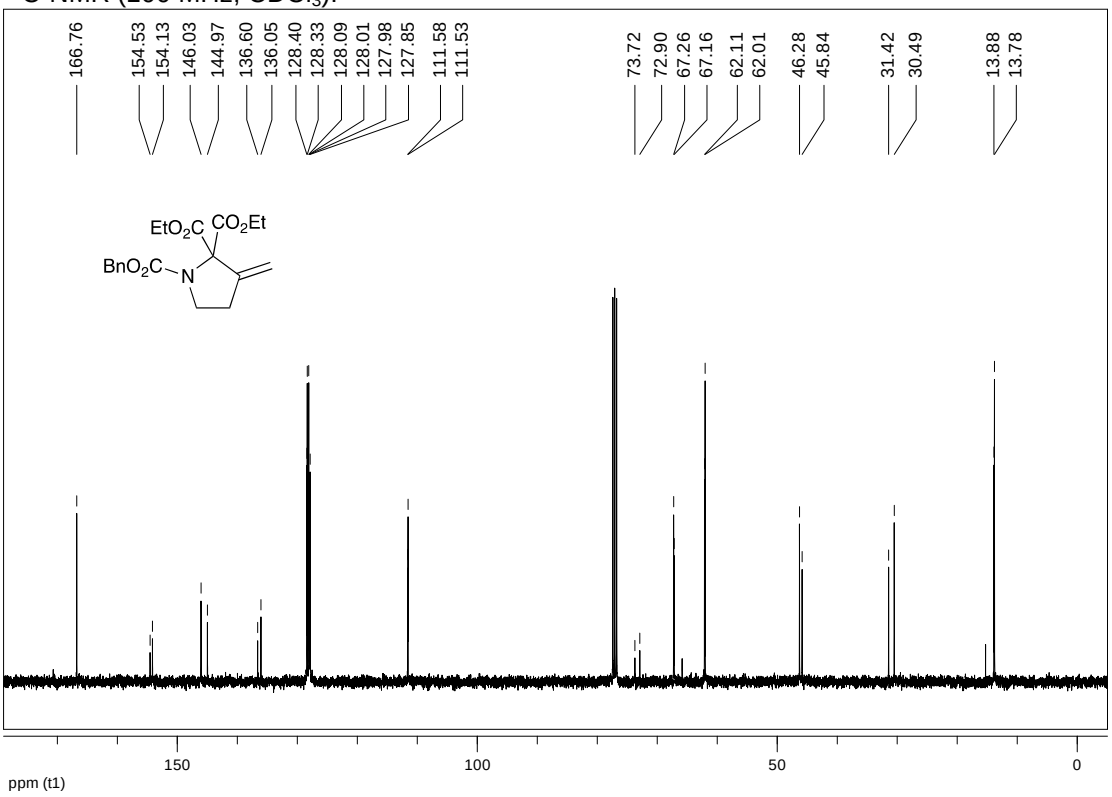


1-Benzyl 2,2-diethyl 3-methylenepyrrolidine-1,2,2-tricarboxylate 16a – mixture of rotamers

^{1}H-NMR (400 MHz, $CDCl_3$):

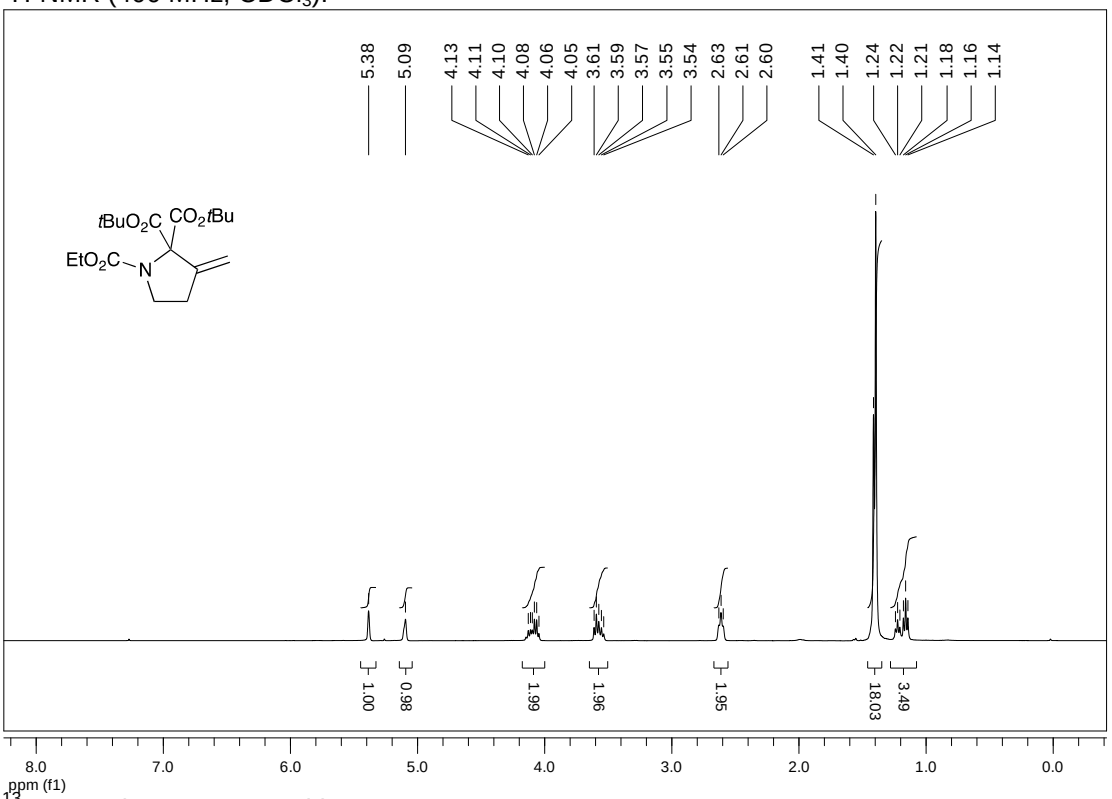


^{13}C-NMR (100 MHz, $CDCl_3$):

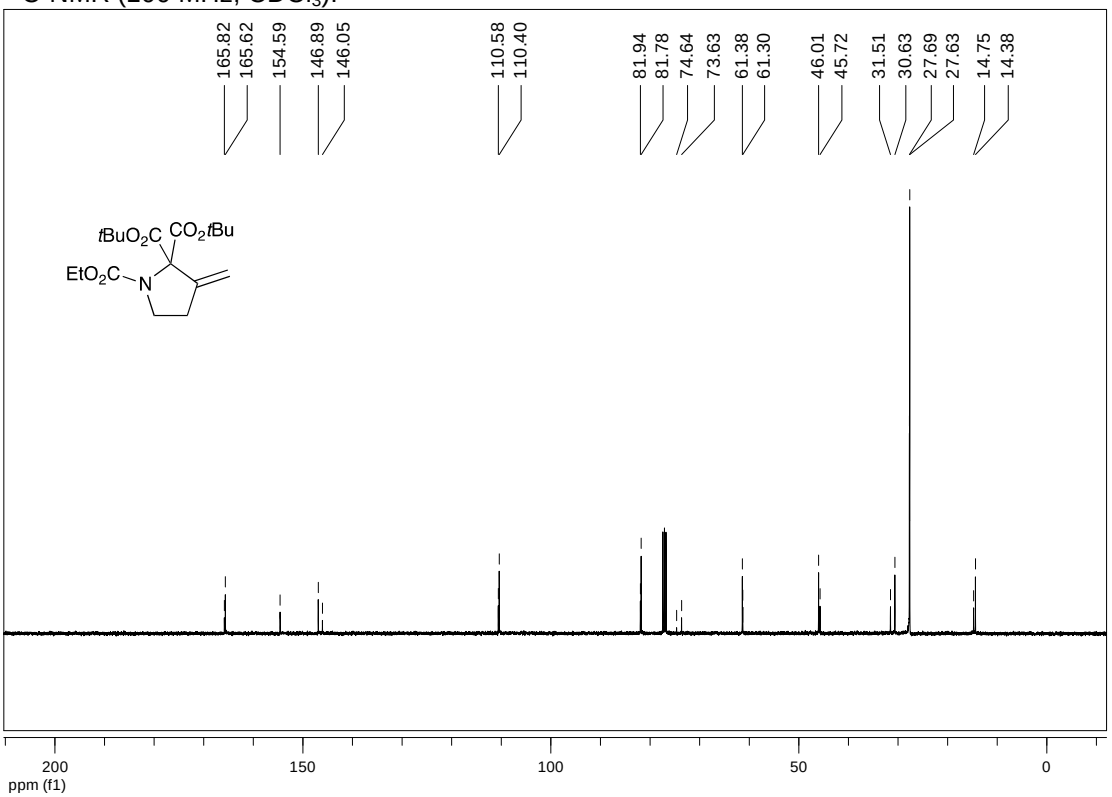


2,2-Di-*tert*-butyl 1-ethyl 3-methylenepyrrolidine-1,2,2-tricarboxylate 16b – mixture of rotamers

^{1}H-NMR (400 MHz, $CDCl_3$):

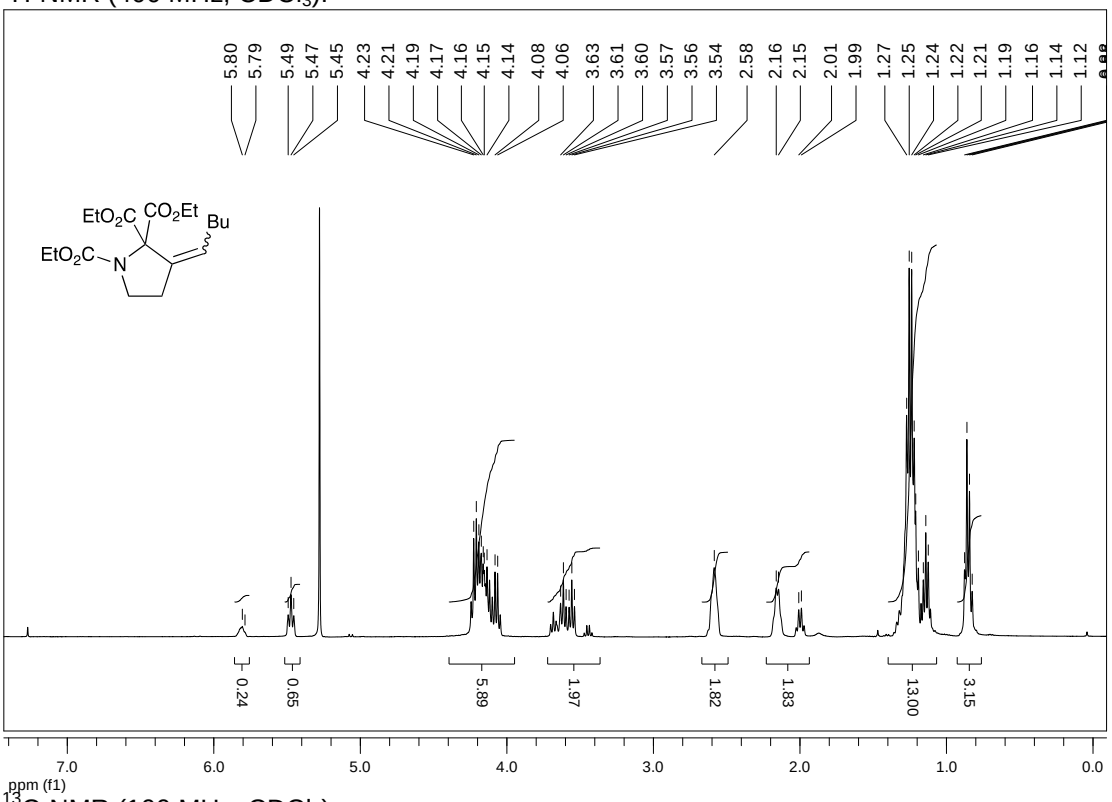


^{13}C-NMR (100 MHz, $CDCl_3$):

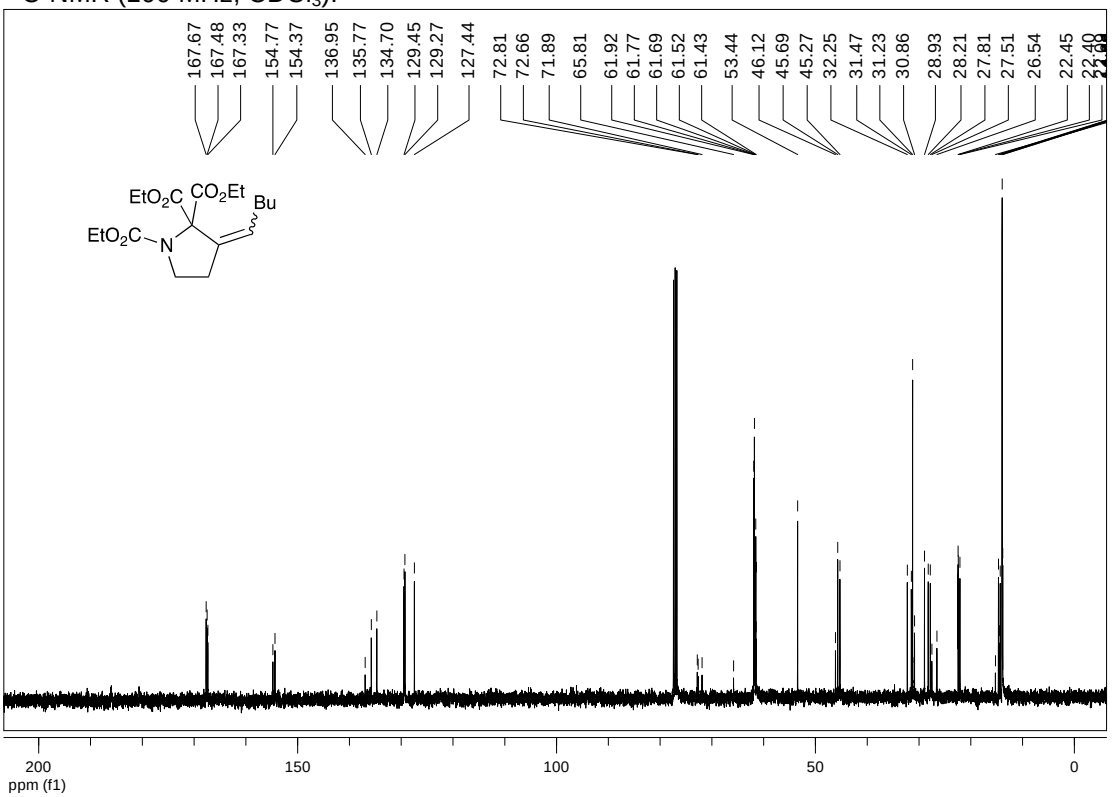


Triethyl 3-pentylidenepyrrolidine-1,2,2-tricarboxylate 16c – mixture of diastereomers and rotamers

^{1}H-NMR (400 MHz, $CDCl_3$):

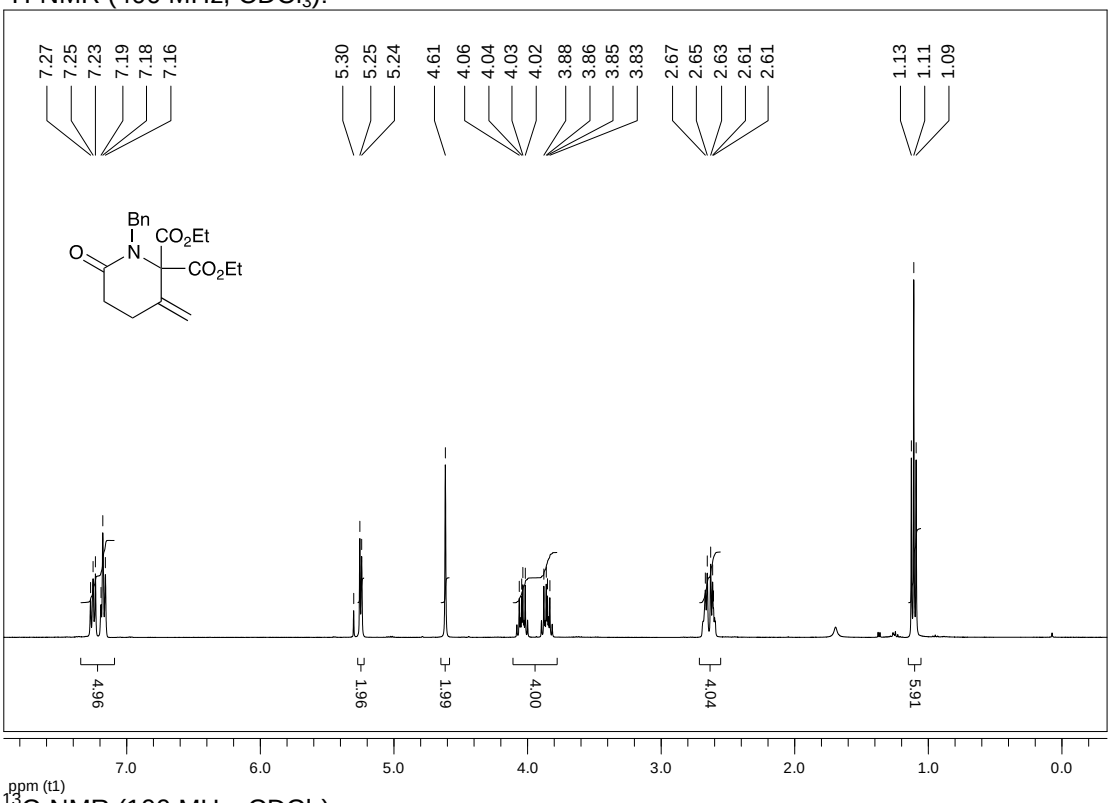


^{13}C-NMR (100 MHz, $CDCl_3$):

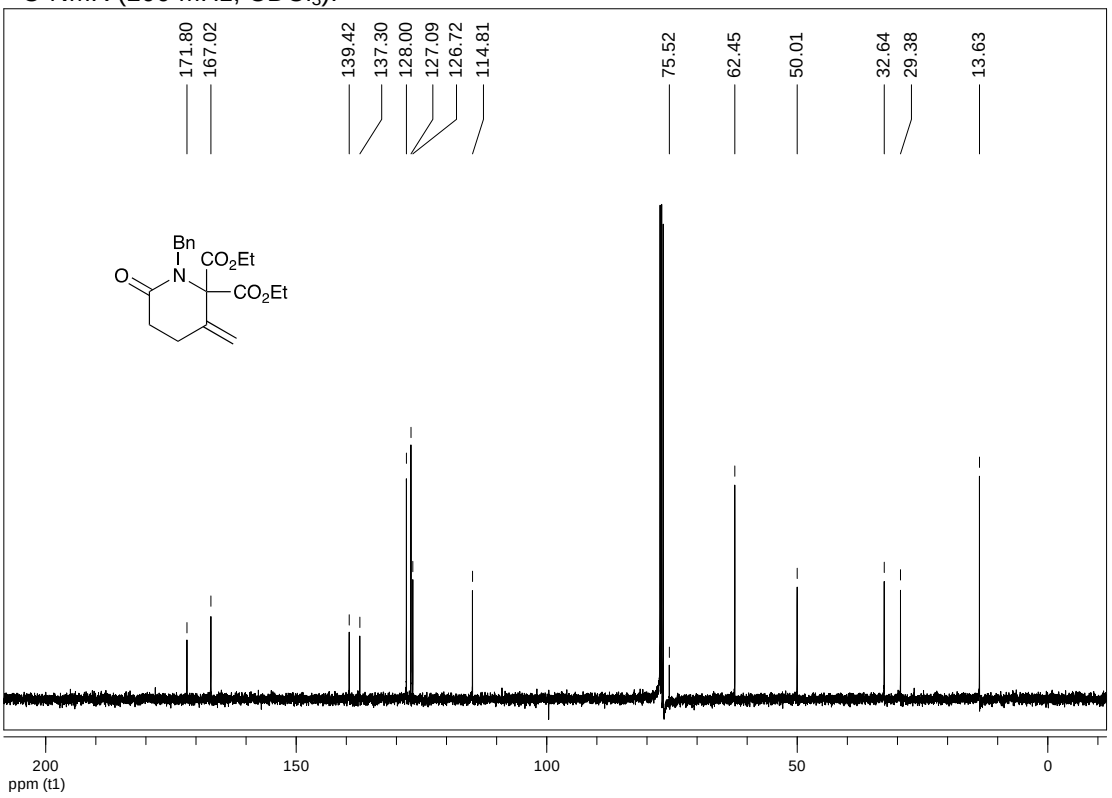


Diethyl 1-benzyl-3-methylene-6-oxopiperidine-2,2-dicarboxylate 18a

^{1}H-NMR (400 MHz, $CDCl_3$):

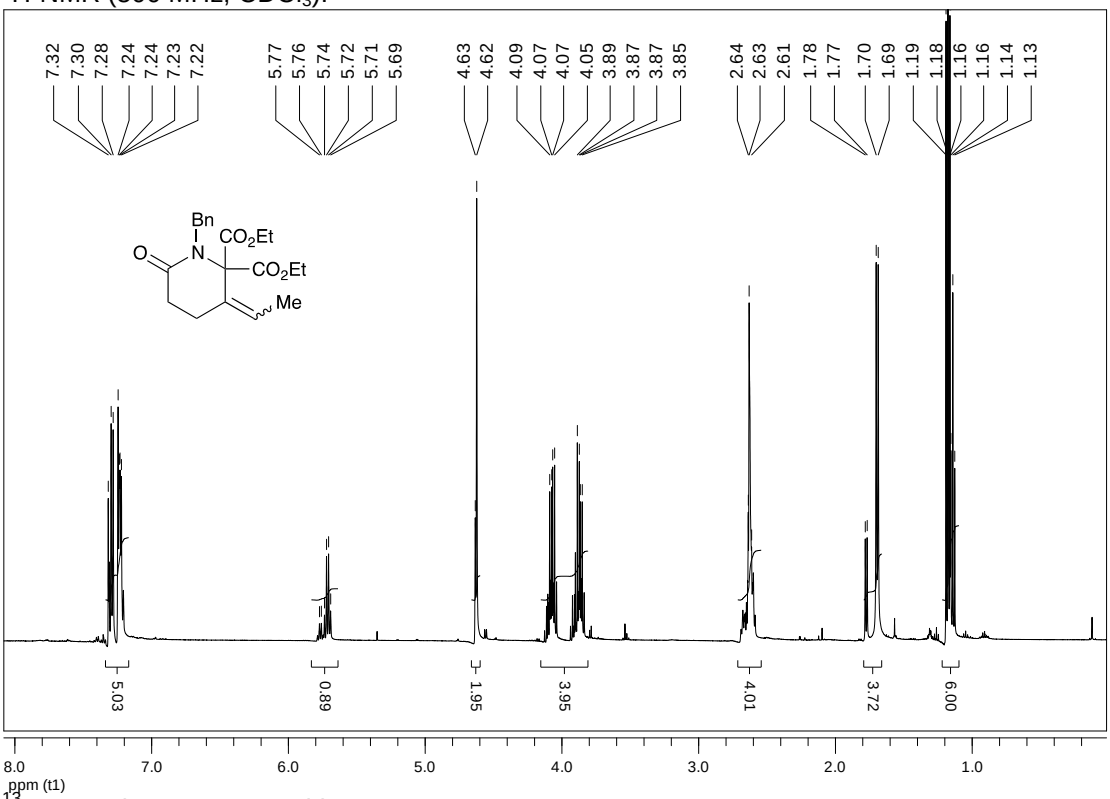


^{13}C-NMR (100 MHz, $CDCl_3$):



Diethyl 1-benzyl-3-ethylidene-6-oxopiperidine-2,2-dicarboxylate 18b – 5:1 *Z*:*E* mixture of diastereomers

^{1}H-NMR (500 MHz, $CDCl_3$):



^{13}C-NMR (125 MHz, $CDCl_3$):