Supplementary Material (ESI) for Organic and Biomolecular Chemistry

Supporting Informations

Hypervalent iodine (III) mediated oxidation of aldoximes to *N*-acetoxy or *N*-hydroxy amides

Harisadhan Ghosh and Bhisma K. Patel*
Department of Chemistry, Indian Institute of Technology Guwahati 781 039, Assam, India.
patel@iitg.ernet.in

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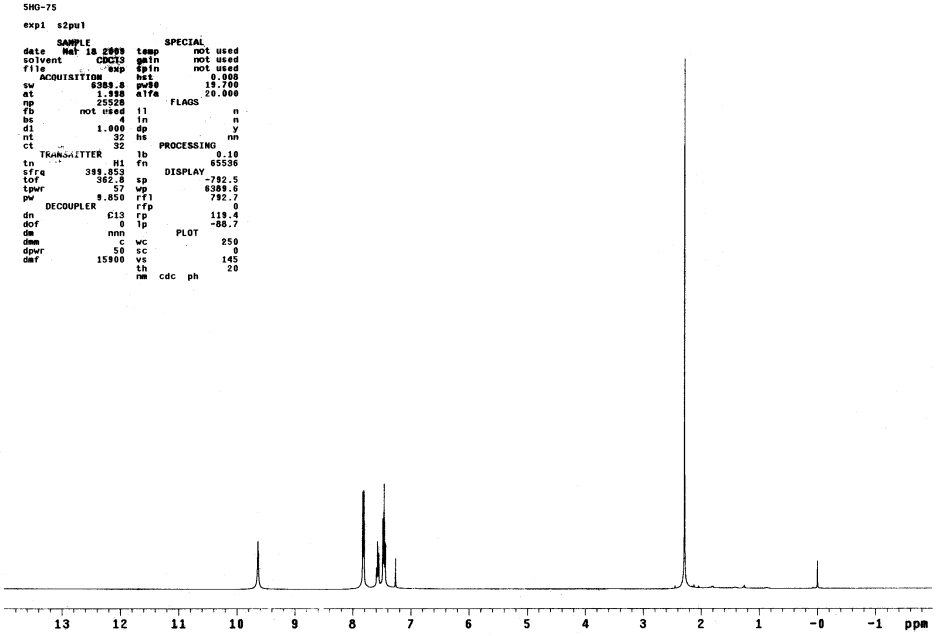
Preparation of starting aldoximes:

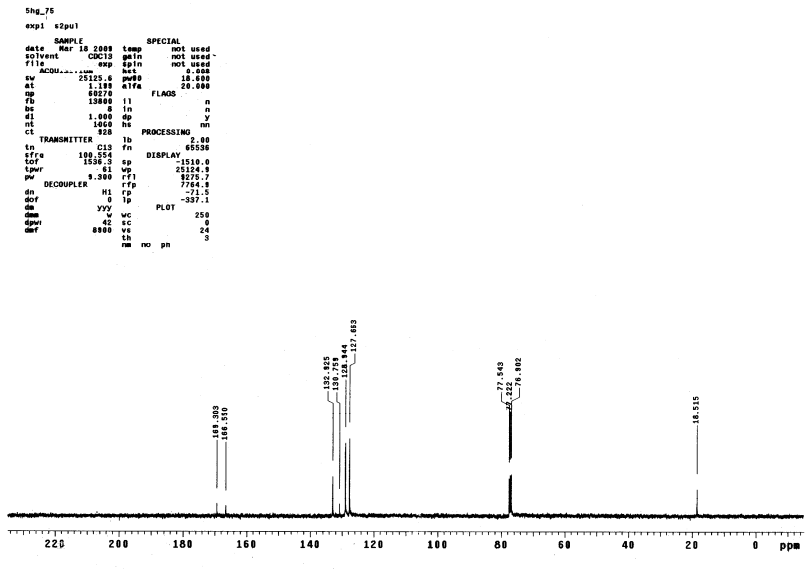
All aldoximes were prepared according to the reported procedure [see supporting information of B. A. Mendelsohn, S. Lee, S. Kim, F. Teyssier, V. S. Aulakh, M. A. Ciufolini *Org. Lett.*, **2009**, *11*, 1539–1542 or see E. Hauser in E. Muller, *Methoden der organischen Chemie (Houben-Weyl)* Vol. 2, p. 446. ThiemeVerlag, Stuttargart (1953)] and obtained as a mixture of *syn- / anti*- isomers, which were used without further purification.

Spectra

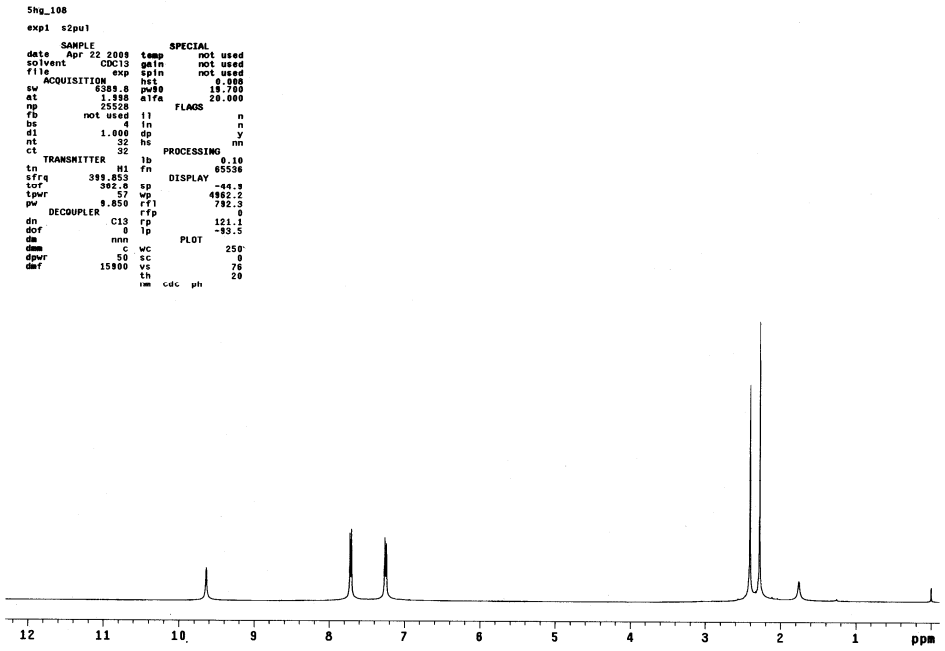
N-Acetoxy-benzamide (1a): ^{1}H NMR (400 MHz, $CDCl_3$):



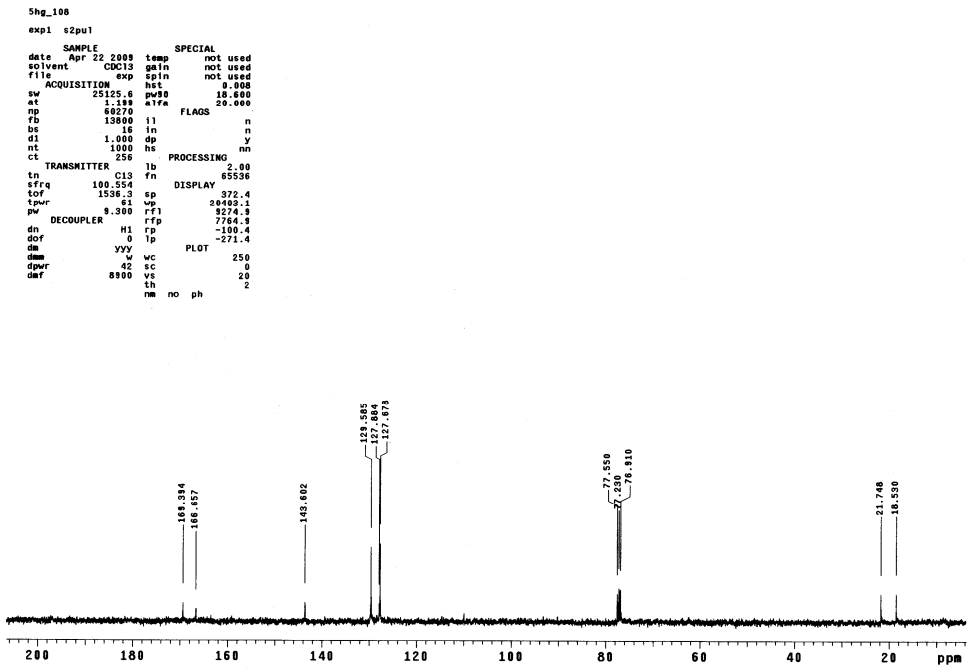
N-Acetoxy-benzamide (1a): ^{13}C NMR (100 MHz, $CDCl_3$):



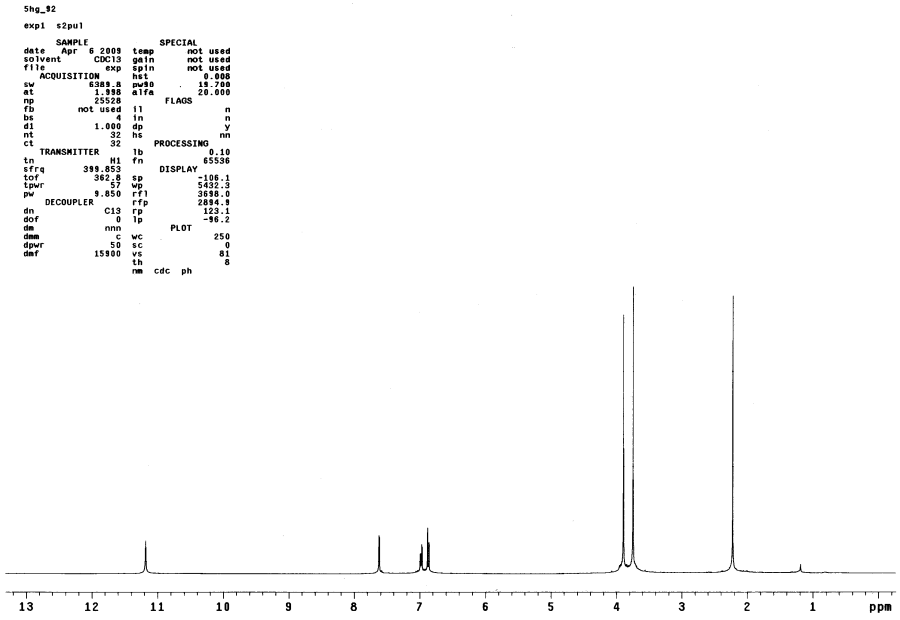
N-Acetoxy-4-methyl-benzamide (2a): ^{1}H NMR (400 MHz, $CDCl_3$):



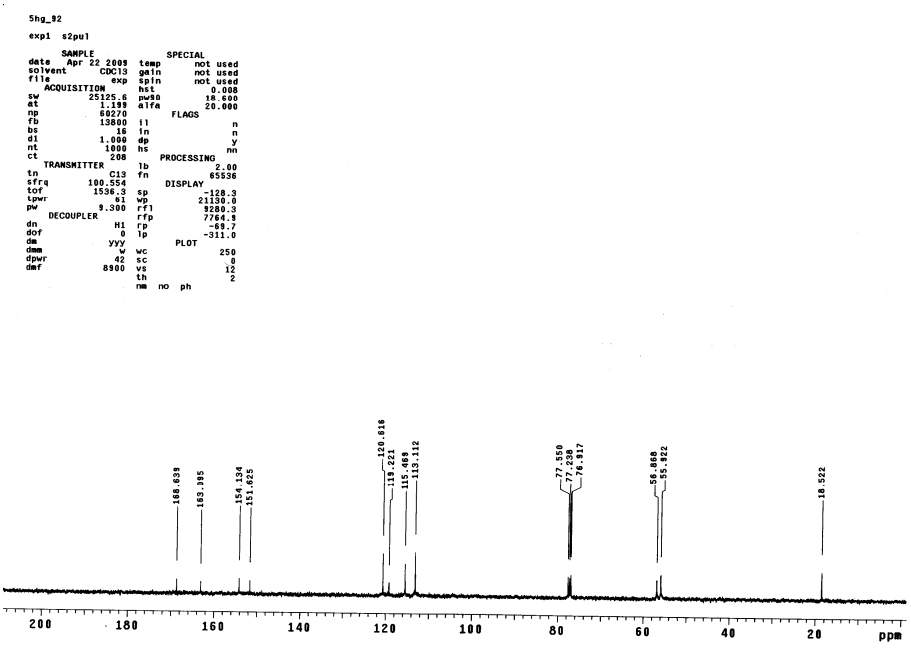
N-Acetoxy-4-methyl-benzamide (2a): ^{13}C NMR (100 MHz, $CDCl_3$):



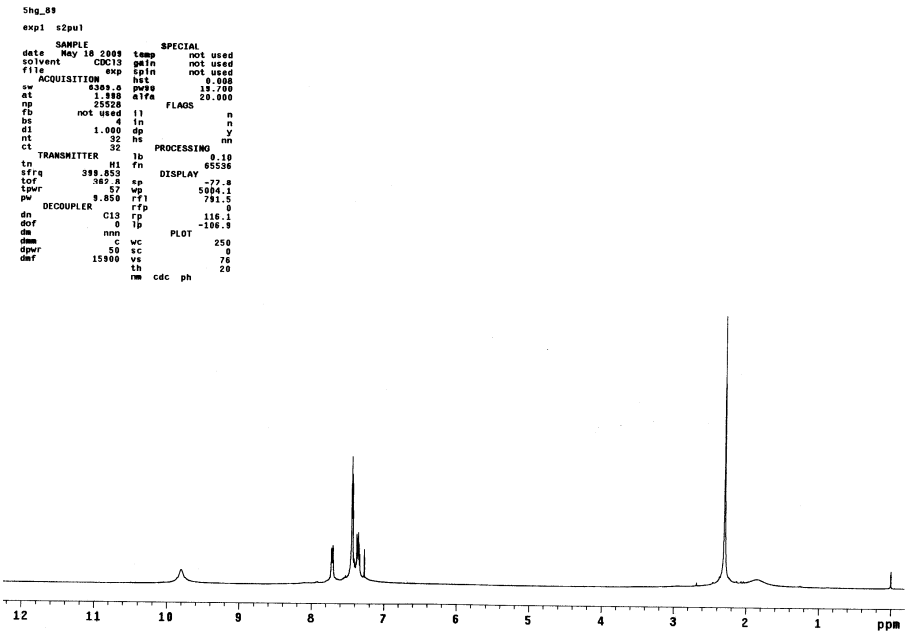
N-Acetoxy-2,5-dimethoxy-bemzamide (3a): ^{1}H NMR (400 MHz, $CDCl_3$):



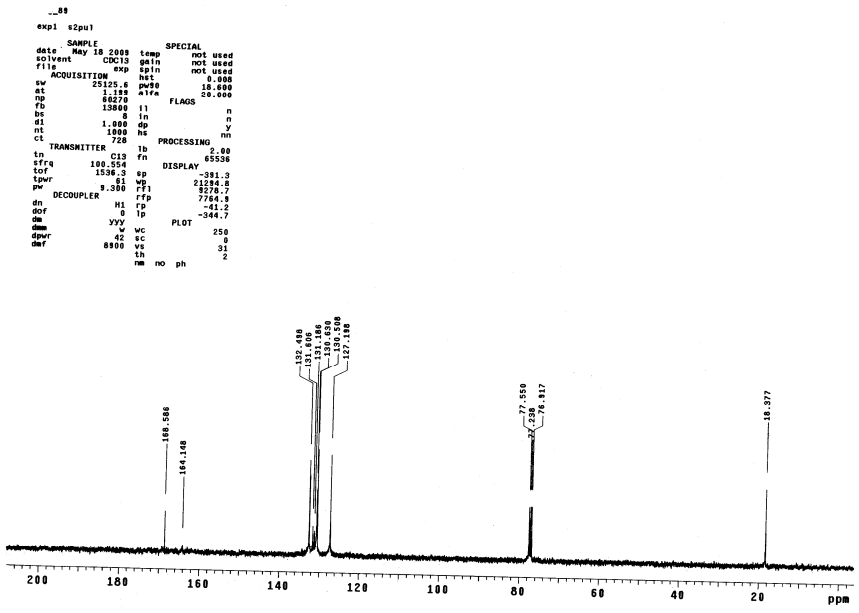
N-Acetoxy-2,5-dimethoxy-bemzamide (3a): ^{13}C NMR (100 MHz, $CDCl_3$):



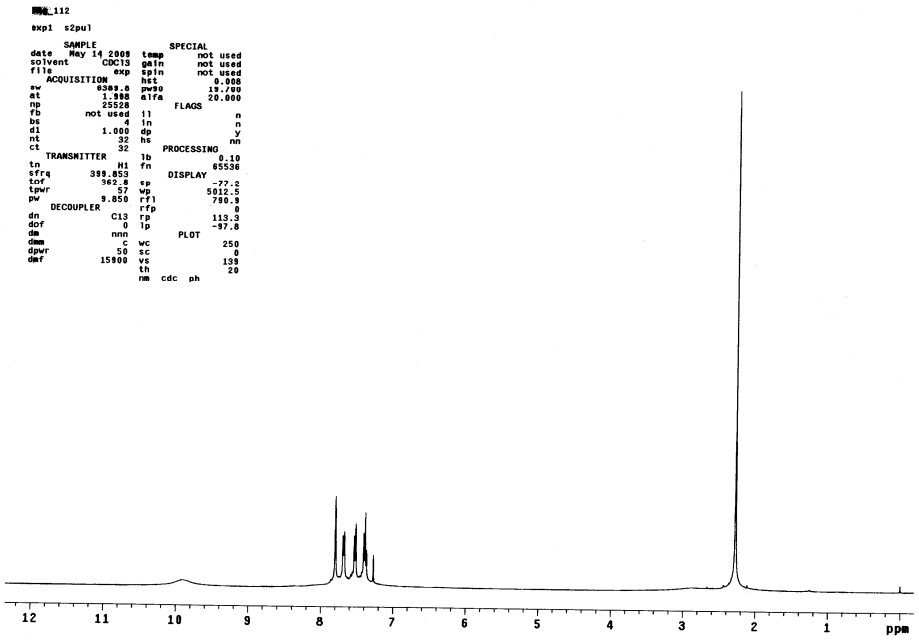
N-Acetoxy-2-chloro-benzamide (4a): ^{1}H NMR (400 MHz, $CDCl_3$):



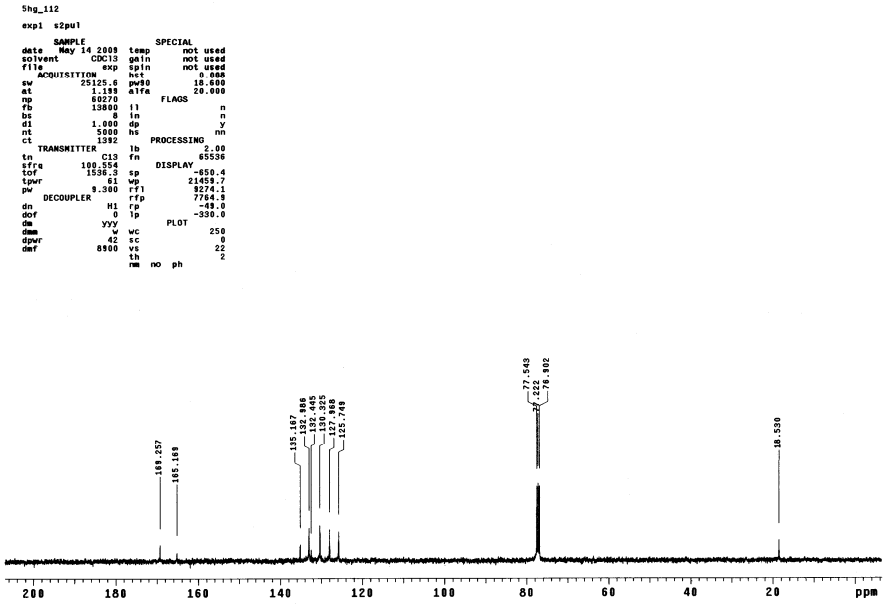
N-Acetoxy-2-chloro-benzamide (4a): ^{13}C NMR (100 MHz, $CDCl_3$):



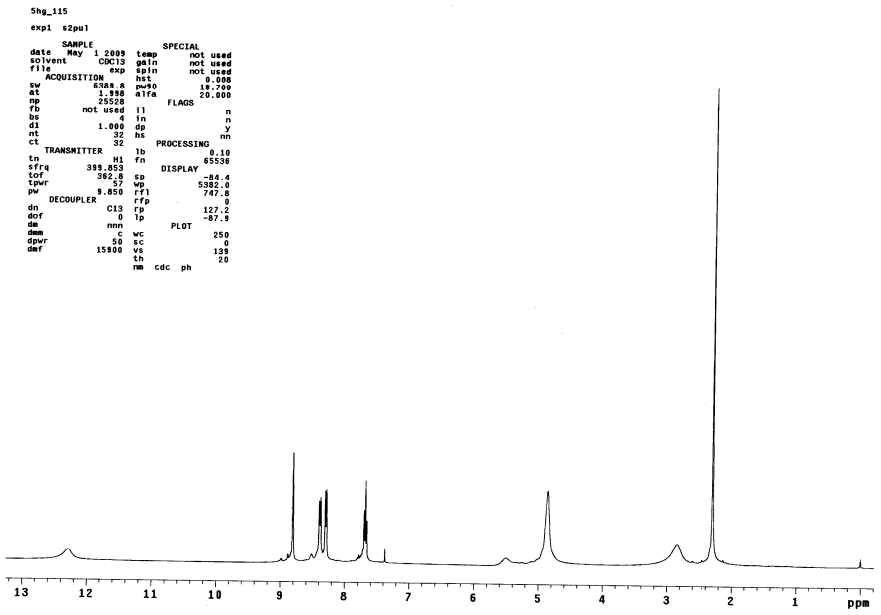
N-Acetoxy-3-chloro-benzamide (5a): ^{1}H NMR (400 MHz, $CDCl_3$):



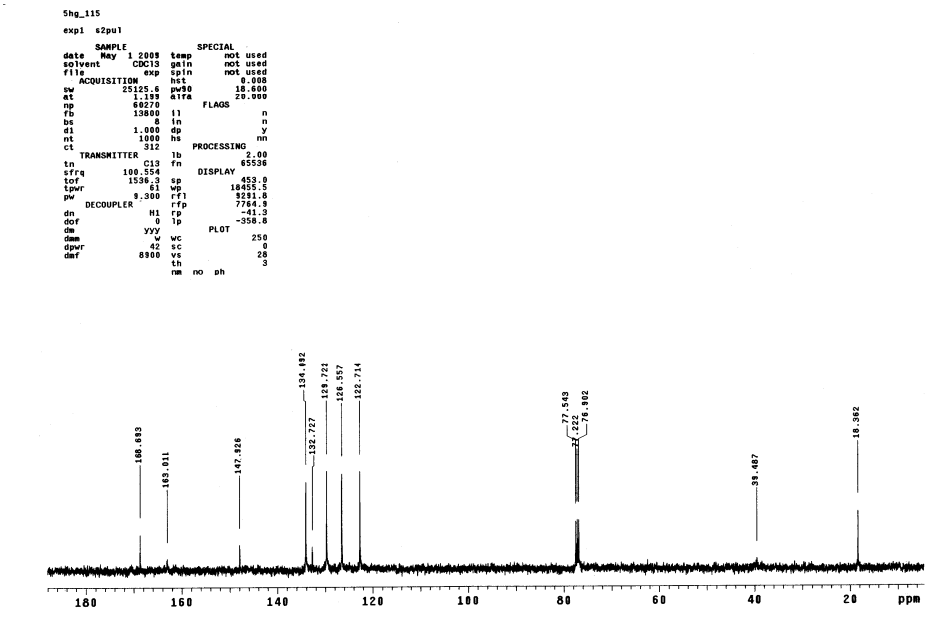
N-Acetoxy-3-chloro-benzamide (5a): ^{13}C NMR (100 MHz, $CDCl_3$):



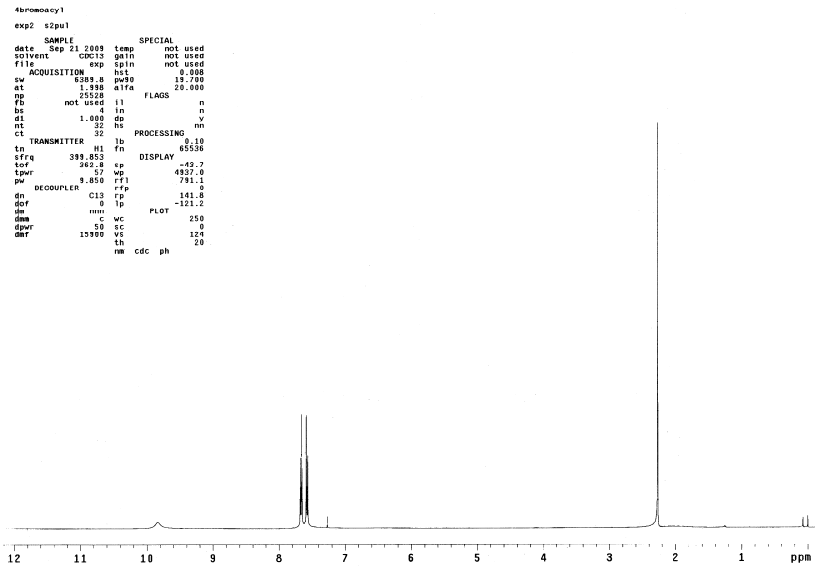
_N_-Acetoxy-3-nitro-benzamide (6a): ^{1}H NMR (400 MHz, $CDCl_3$ + DMSO-d_6):



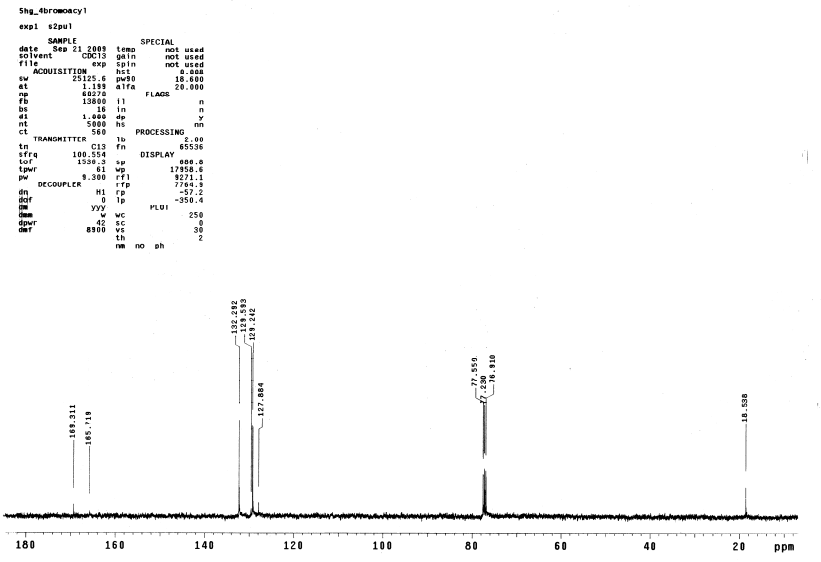
_N_-Acetoxy-3-nitro-benzamide (6a): ^{13}C NMR (100 MHz, $CDCl_3$ + DMSO-d_6):



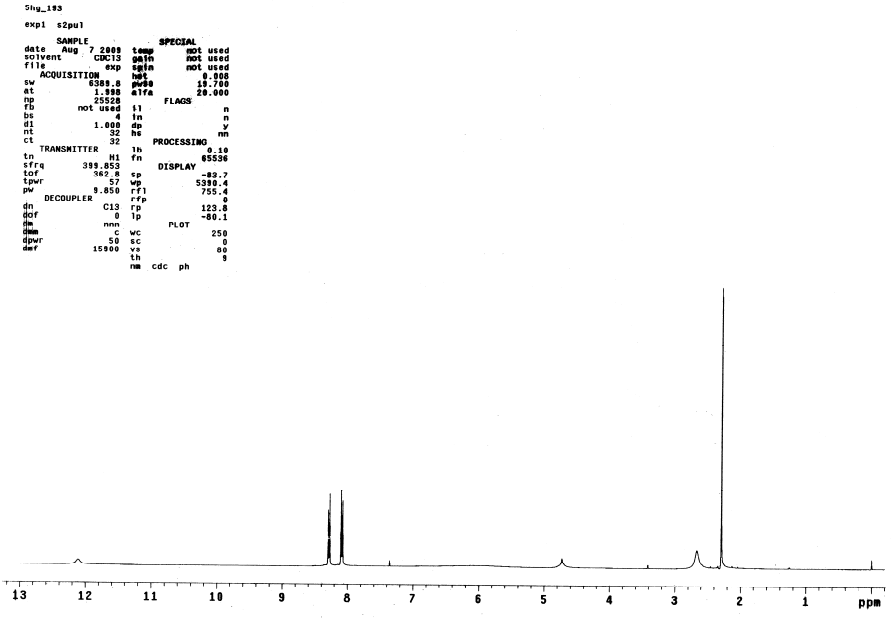
N-Acetoxy-4-bromo-benzamide (7a): ^{1}H NMR (400 MHz, $CDCl_3$):



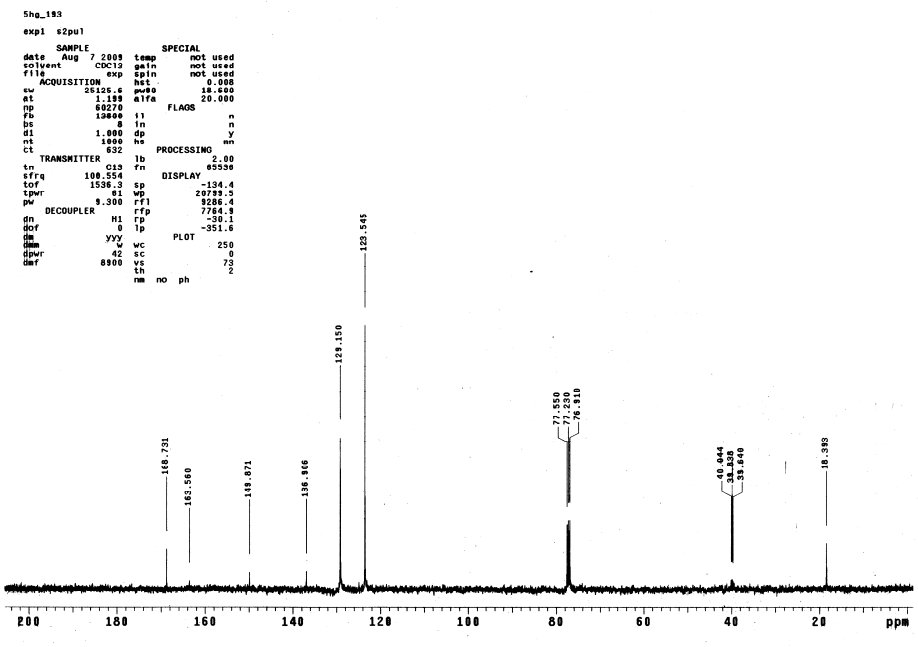
N-Acetoxy-4-bromo-benzamide (7a): ^{13}C NMR (100 MHz, $CDCl_3$):



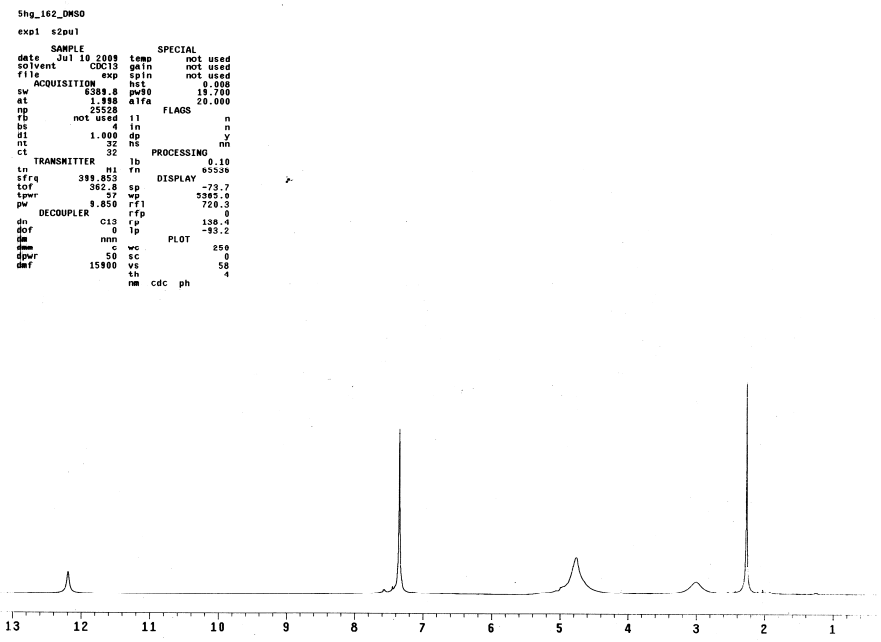
_N_-Acetoxy-4-nitro-benzamide (8a): ^{1}H NMR (400 MHz, $CDCl_3$ + DMSO-d_6):



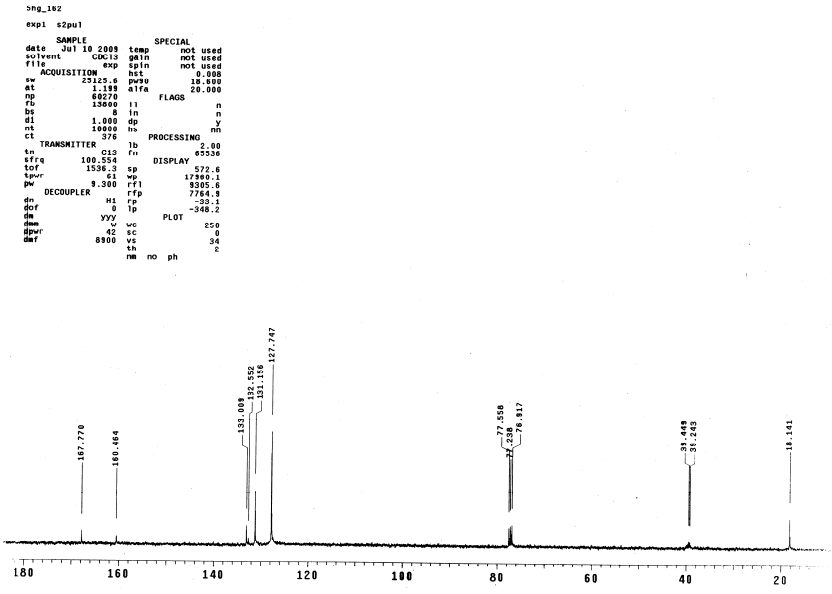
_N_-Acetoxy-4-nitro-benzamide (8a): ^{13}C NMR (100 MHz, $CDCl_3$ + DMSO-d_6):



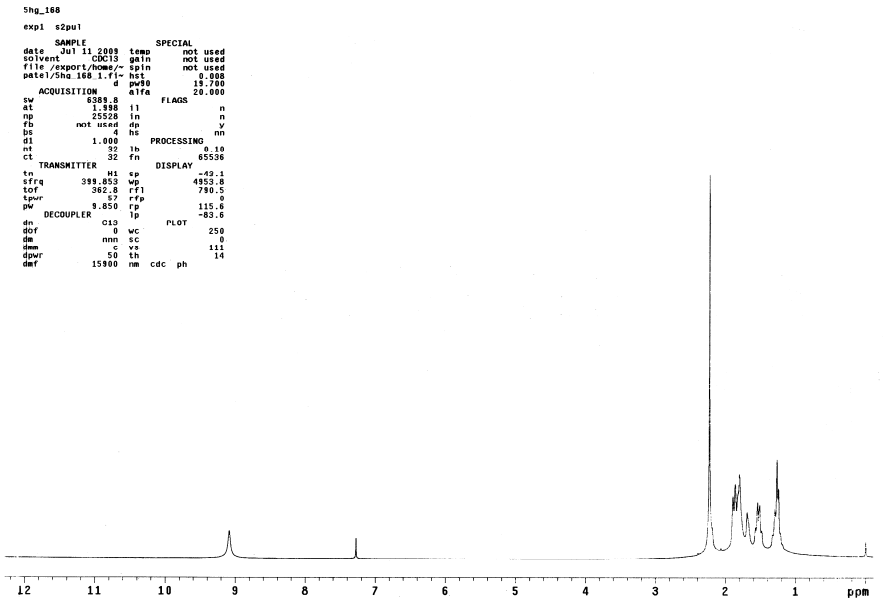
_N_-Acetoxy-2,6-dichloro-benzamide (9a): ^{1}H NMR (400 MHz, $CDCl_3$ + DMSO-d_6):



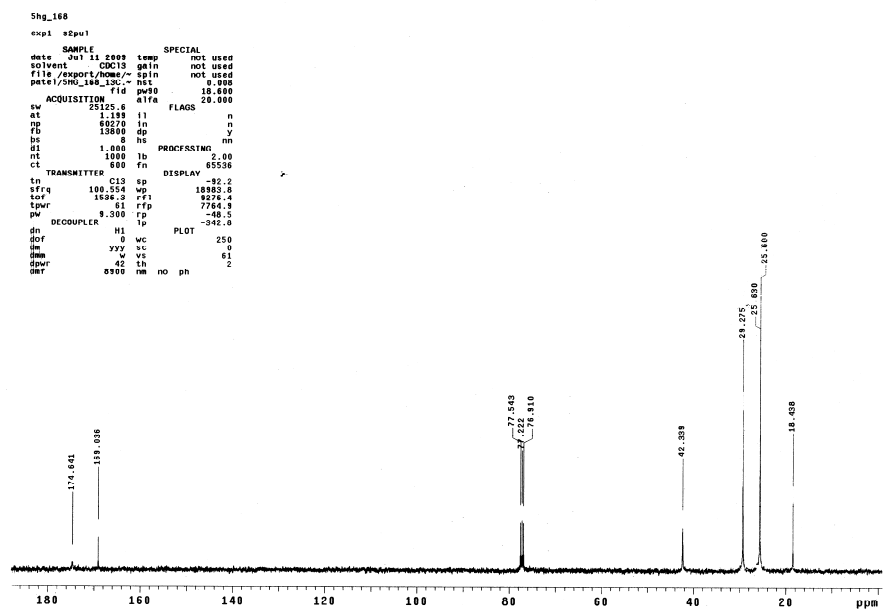
_N_-Acetoxy-2,6-dichloro-benzamide (9a): ^{13}C NMR (100 MHz, $CDCl_3$ + DMSO-d_6):



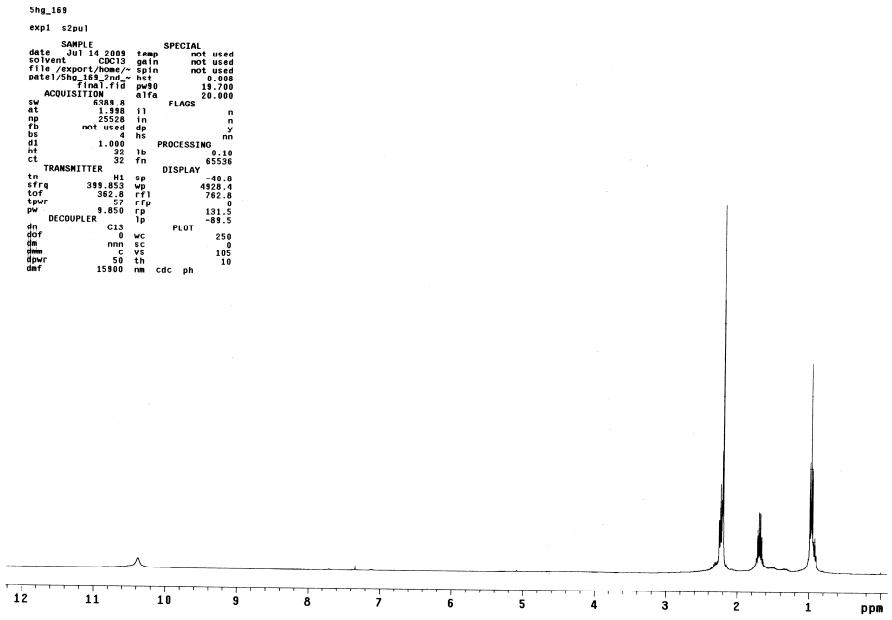
Cyclohexanecarboxylic acid acetoxy-amide (10a): ^{1}H NMR (400 MHz, $CDCl_3$):



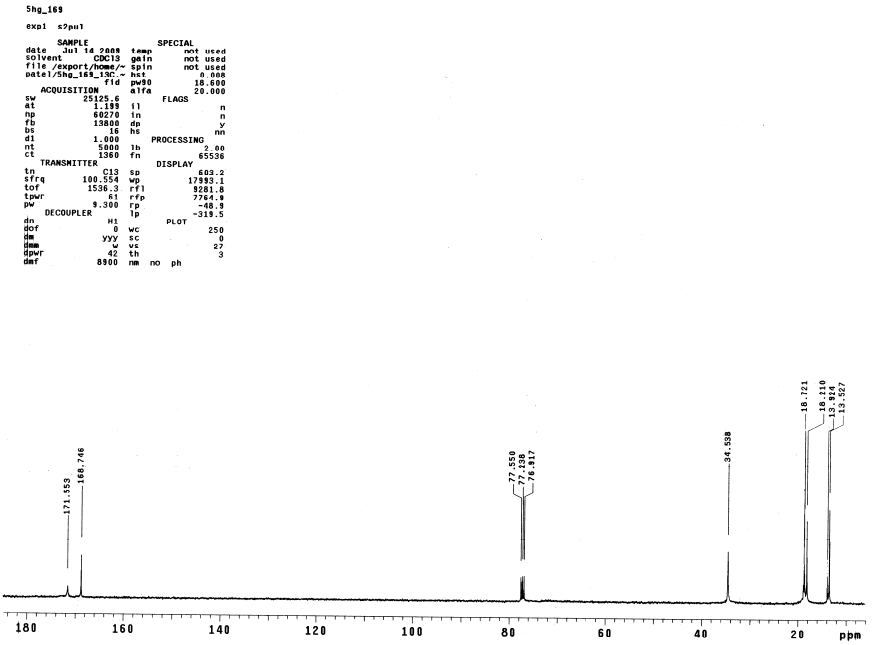
Cyclohexanecarboxylic acid acetoxy-amide (10a): ^{13}C NMR (100 MHz, $CDCl_3$):



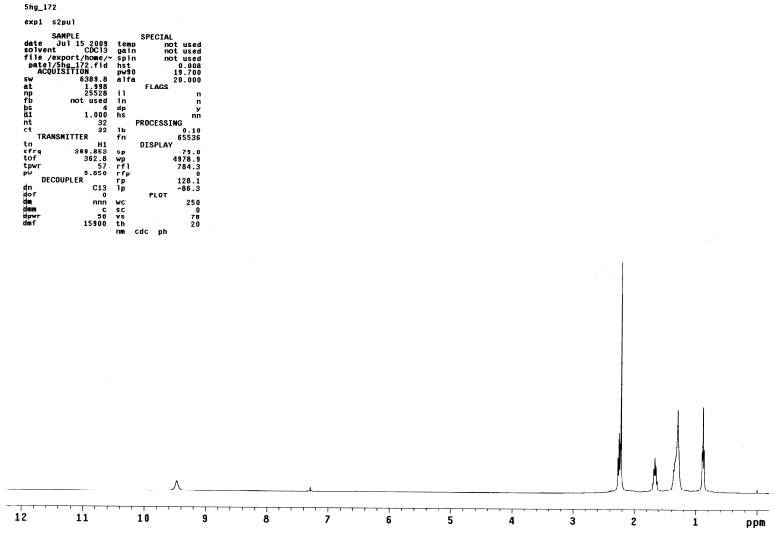
N-Acetoxy-butyramide (11a): ^{1}H NMR (400 MHz, $CDCl_3$):



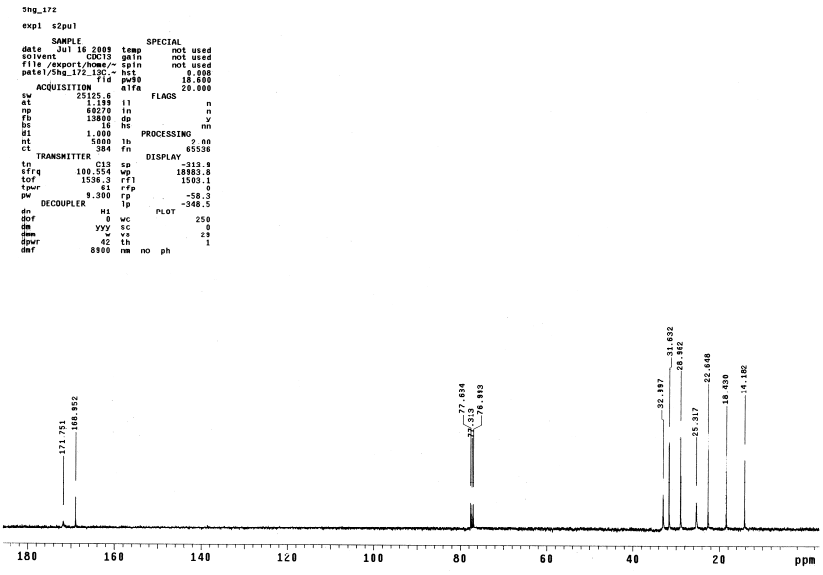
N-Acetoxy-butyramide (11a): ^{13}C NMR (100 MHz, $CDCl_3$):



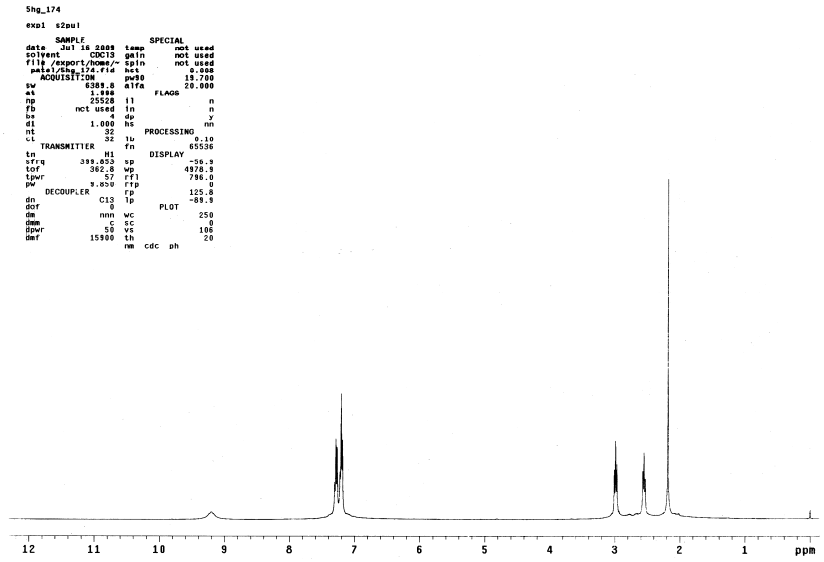
Heptanoic acid acetoxy-amide (12a): ^{1}H NMR (400 MHz, $CDCl_3$):



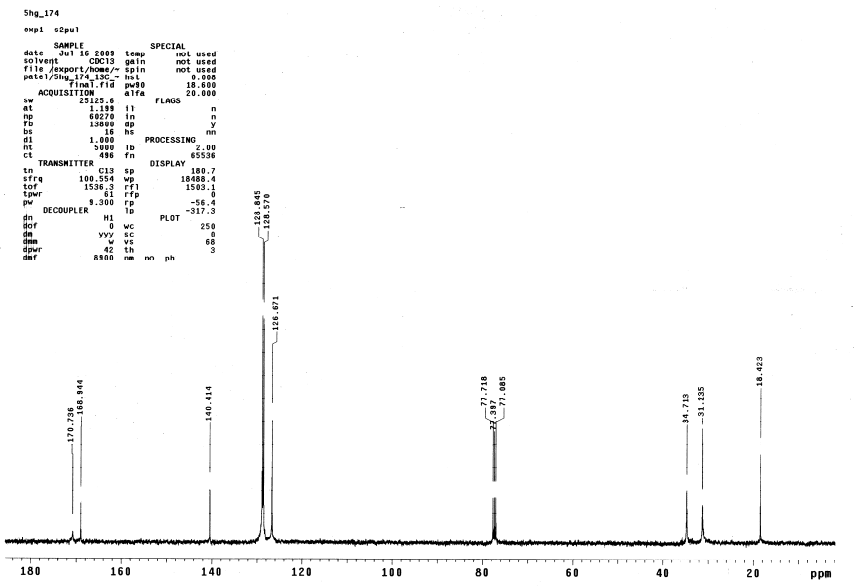
Heptanoic acid acetoxy-amide (12a): ^{13}C NMR (100 MHz, $CDCl_3$):



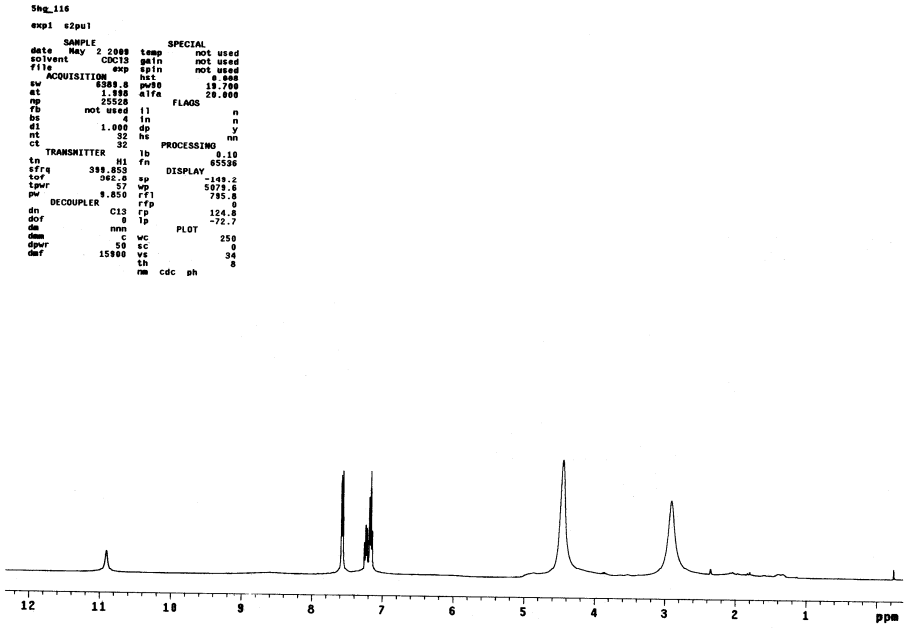
_N_-Acetoxy-3-phenyl-propionamide (13a): ^{1}H NMR (400 MHz, $CDCl_3$):



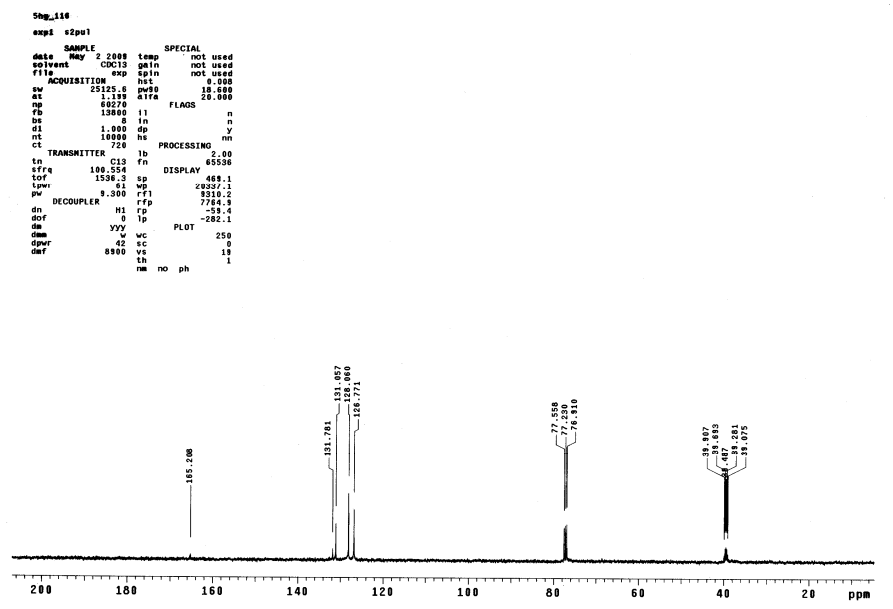
_N_-Acetoxy-3-phenyl-propionamide (13a): ^{13}C NMR (100 MHz, $CDCl_3$):



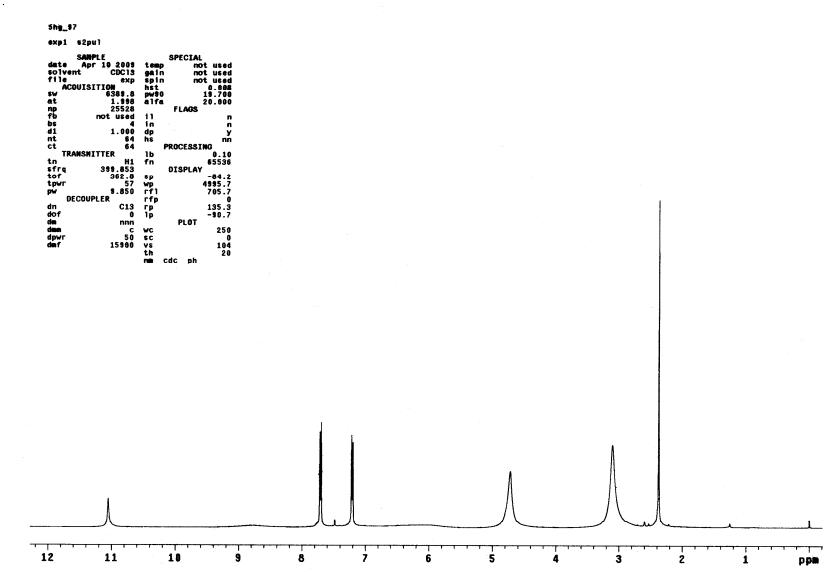
_N_-Hydroxy-benzamide (1b): ^{1}H NMR (400 MHz, $CDCl_3$ + DMSO-d_6):



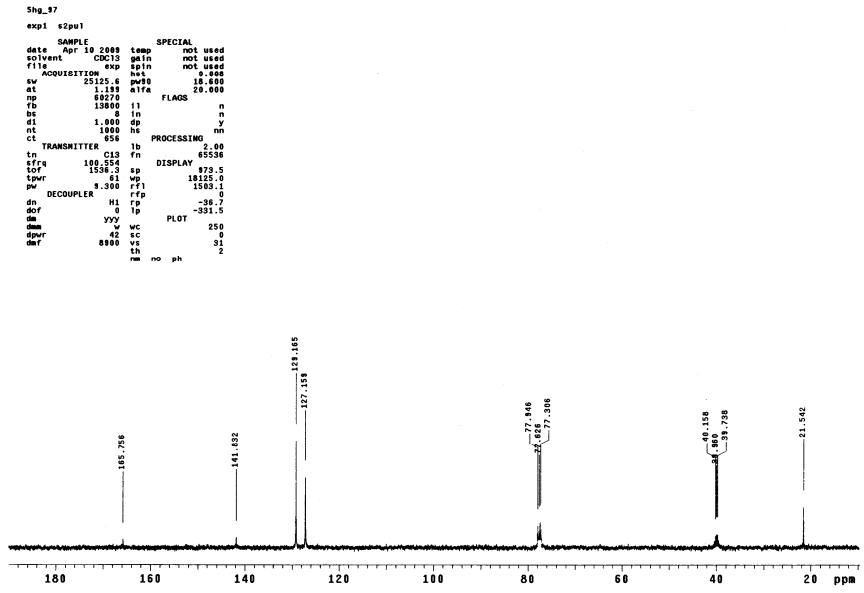
_N_-Hydroxy-benzamide (1b): ^{13}C NMR (100 MHz, $CDCl_3$ + DMSO-d_6):



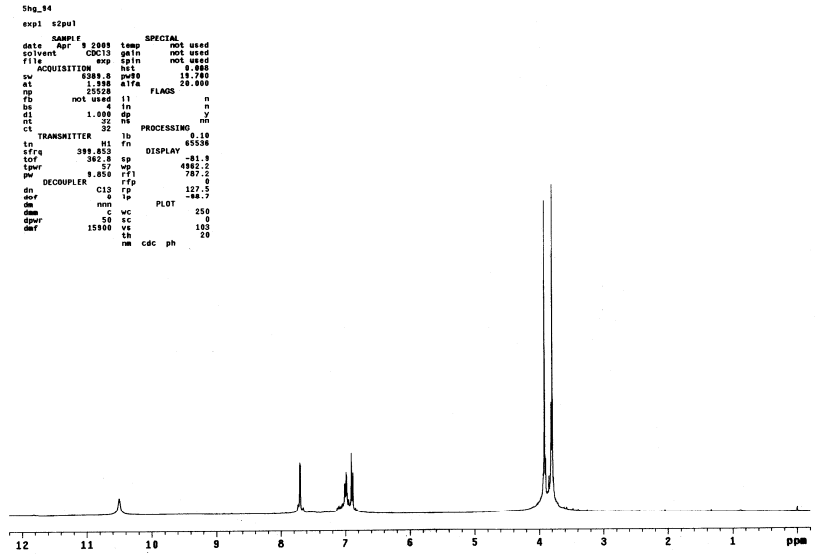
_N_-Hydroxy-4-methyl-benzamide (2b): ^{1}H NMR (400 MHz, $CDCl_3$ + DMSO-d_6):



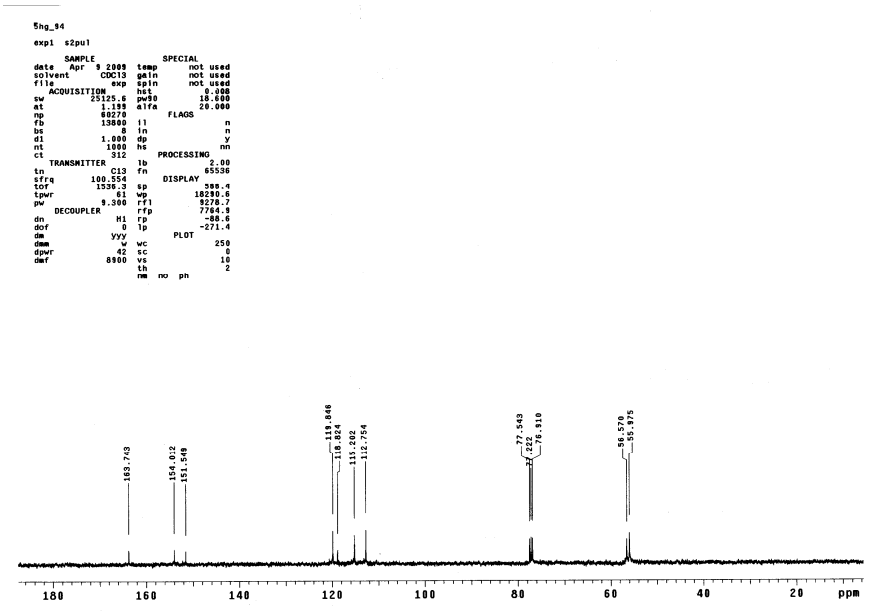
_N_-Hydroxy-4-methyl-benzamide (2b): ^{13}C NMR (100 MHz, $CDCl_3$ + DMSO-d_6):



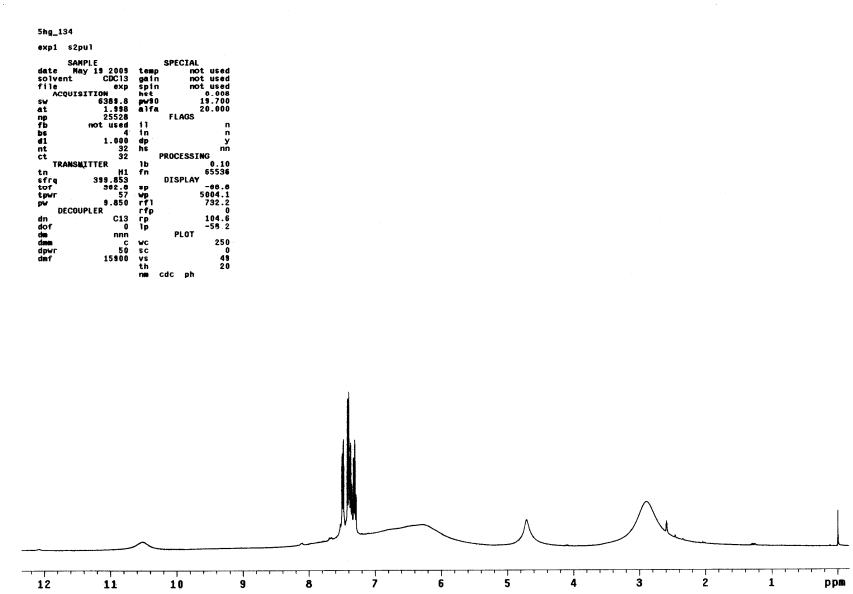
_N_-Hydroxy-2,5-dimethoxy-benzamide (3b): ^{1}H NMR (400 MHz, $CDCl_3$ + DMSO-d_6):



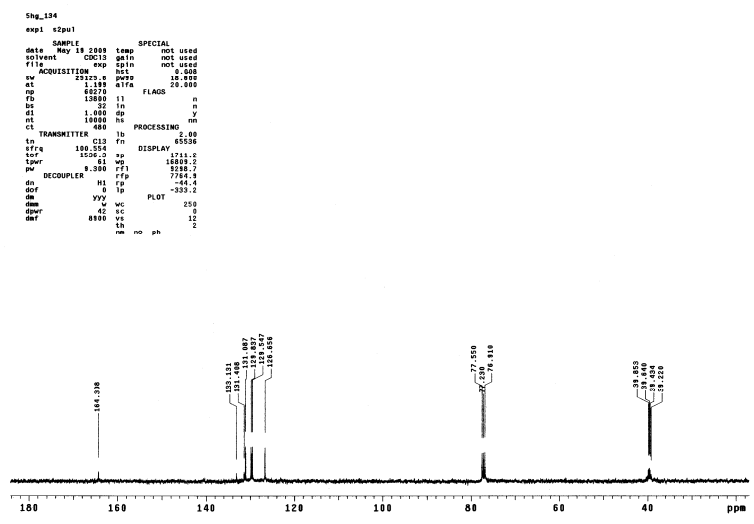
_N_-Hydroxy-2,5-dimethoxy-benzamide (3b): ^{13}C NMR (100 MHz, $CDCl_3$ + DMSO-d_6):



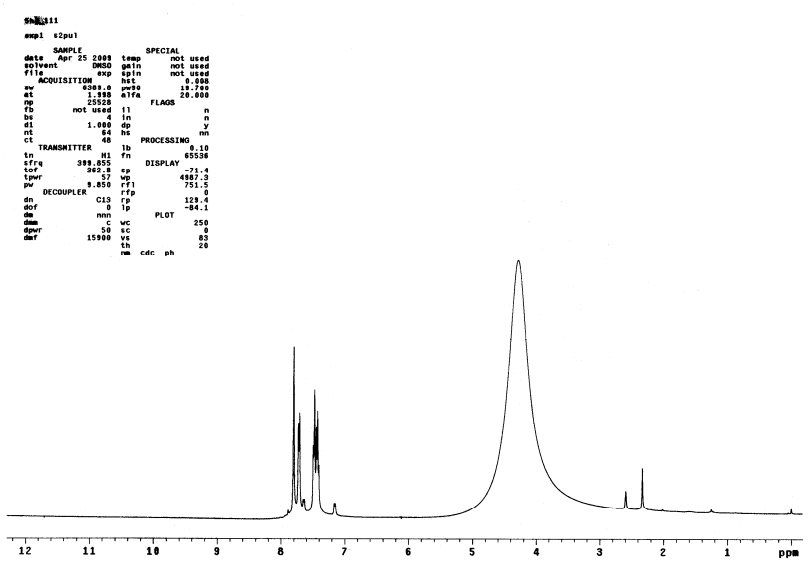
2-Chloro-*N*-hydroxy-benzamide (4b): ^{1}H NMR (400 MHz, $CDCl_3$ + DMSO-d_6):



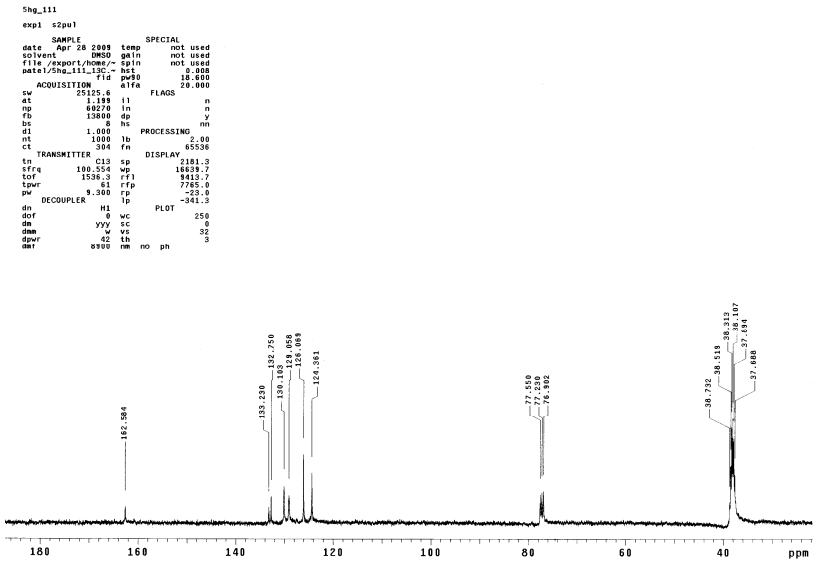
2-Chloro-*N*-hydroxy-benzamide (4b): ^{13}C NMR (100 MHz, $CDCl_3$ + DMSO-d_6)



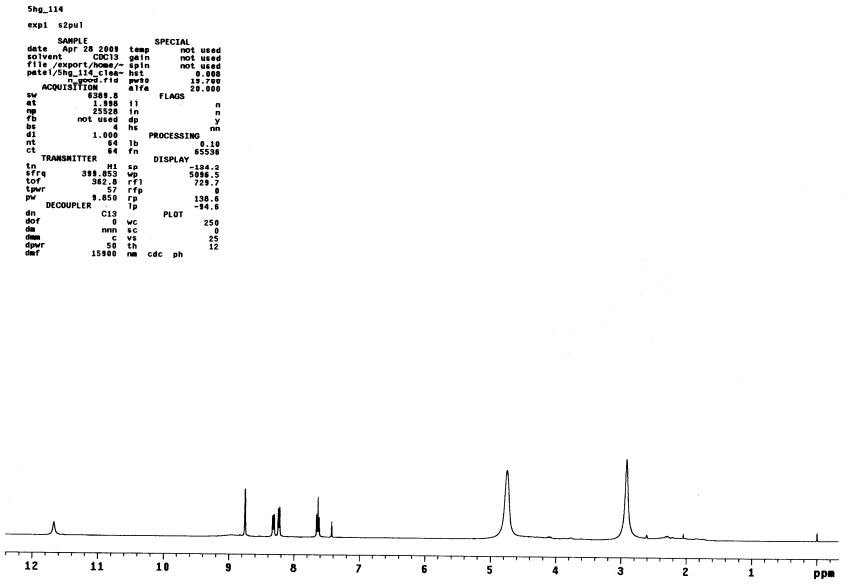
3-Chloro-*N*-hydroxy-benzamide (5b): ^{1}H NMR (400 MHz, $CDCl_3$ + DMSO-d_6):



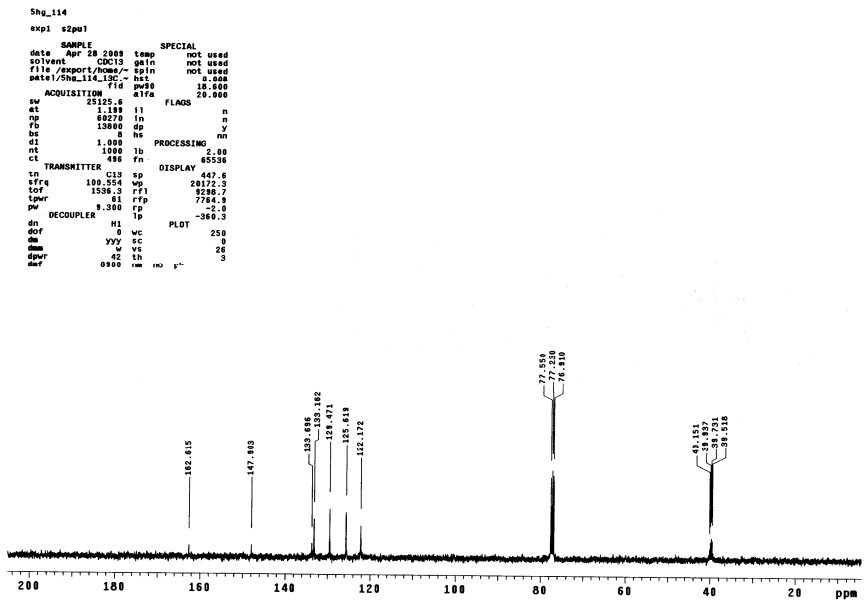
3-Chloro-*N*-hydroxy-benzamide (5b): ^{13}C NMR (100 MHz, $CDCl_3$ + DMSO-d_6)



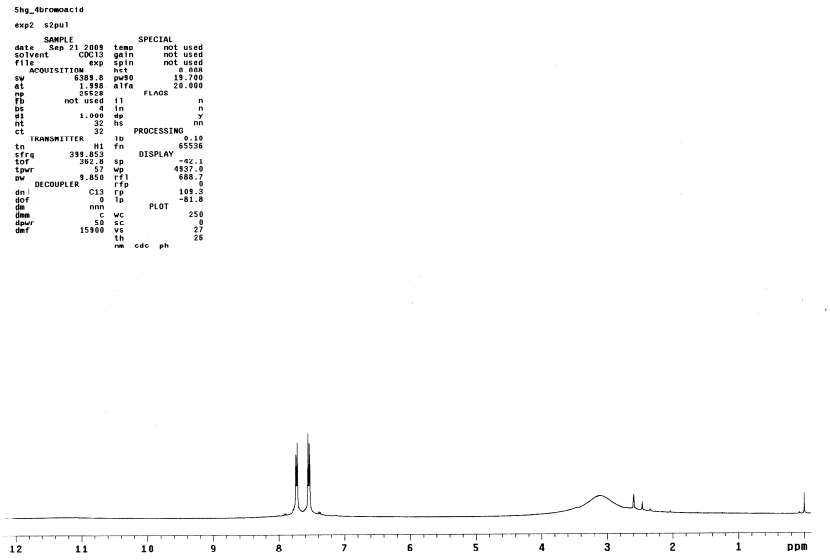
_N_-Hydroxy-3-nitro-benzamide (6b): ^{1}H NMR (400 MHz, $CDCl_3$ + DMSO-d_6):



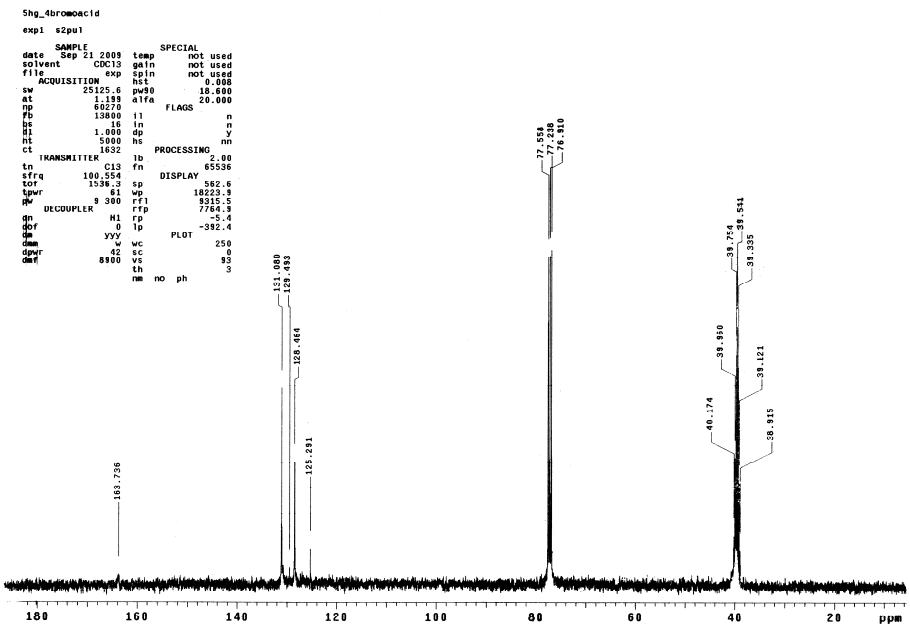
_N_-Hydroxy-3-nitro-benzamide (6b): ^{13}C NMR (100 MHz, $CDCl_3$ + DMSO-d_6)



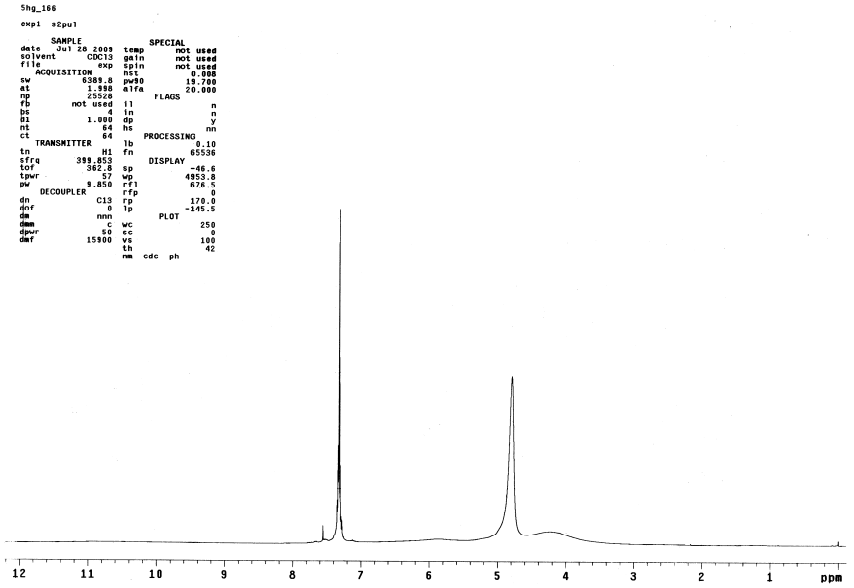
4-Bromo-*N*-hydroxy-benzamide (7b): ^{1}H NMR (400 MHz, $CDCl_3$ + DMSO-d_6):



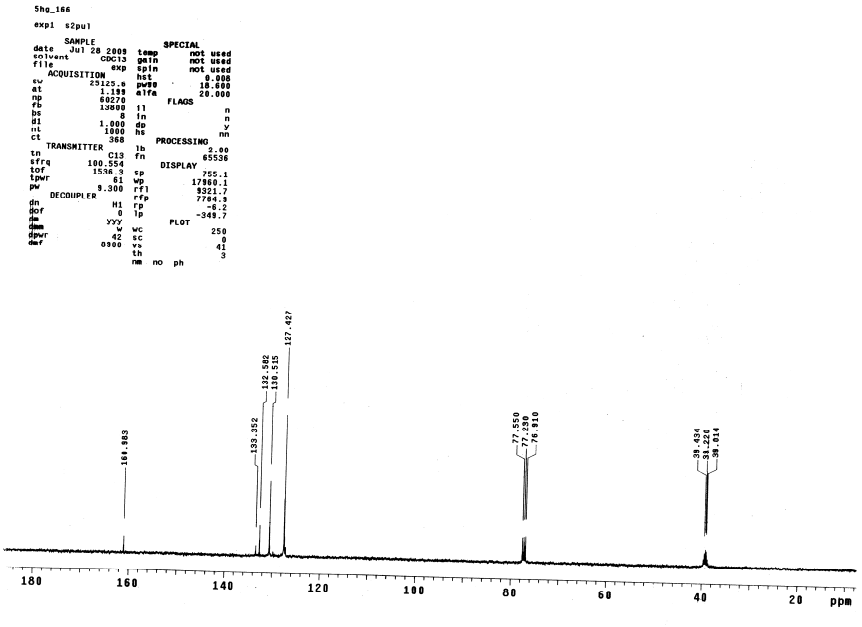
4-Bromo-*N*-hydroxy-benzamide (7b): ^{13}C NMR (100 MHz, $CDCl_3$ + DMSO-d_6)



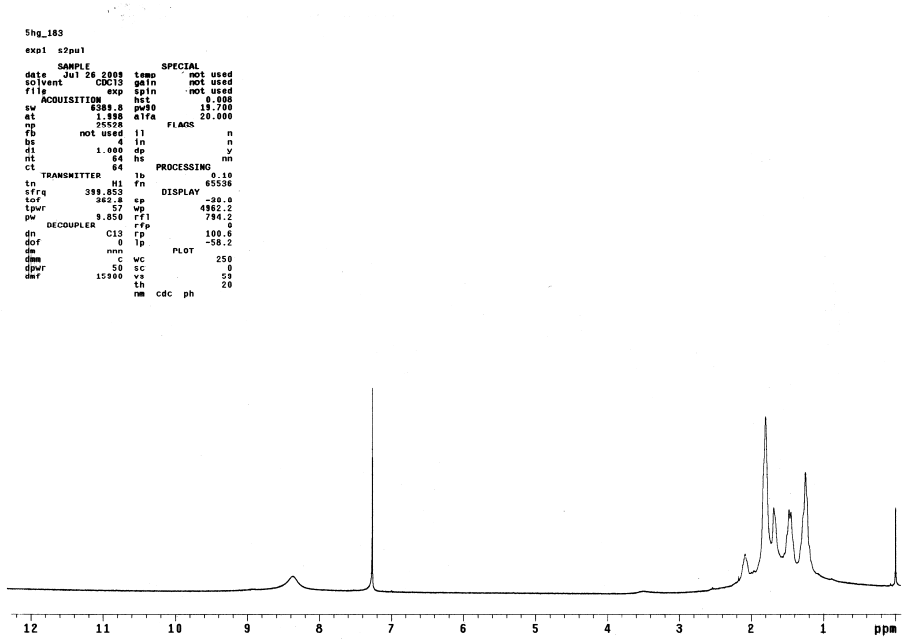
2,6-Dichloro-*N*-hydroxybenzamide (9b): ^{1}H NMR (400 MHz, $CDCl_3$ + DMSO-d_6):



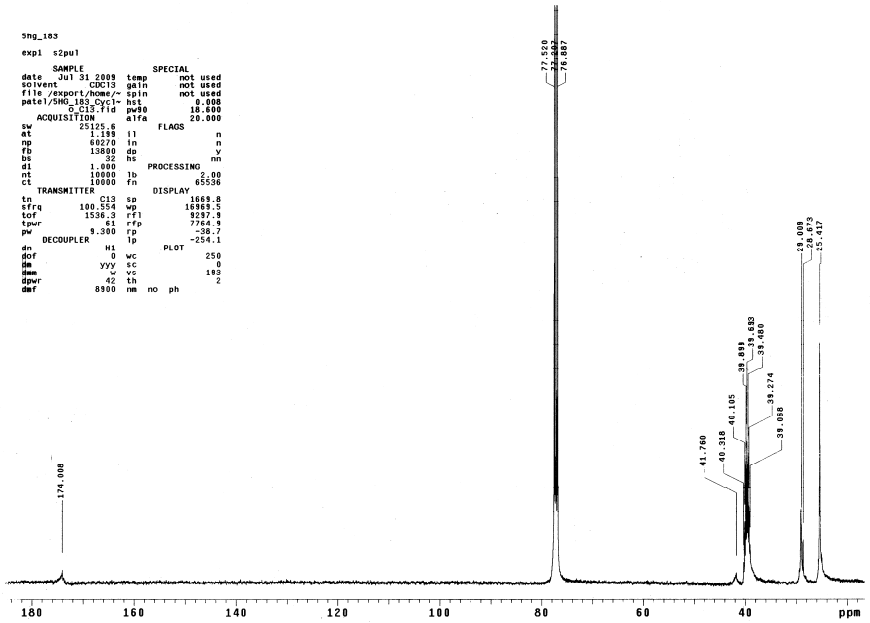
2,6-Dichloro-*N*-hydroxybenzamide (9b): ^{13}C NMR (100 MHz, $CDCl_3$ + DMSO-d_6)



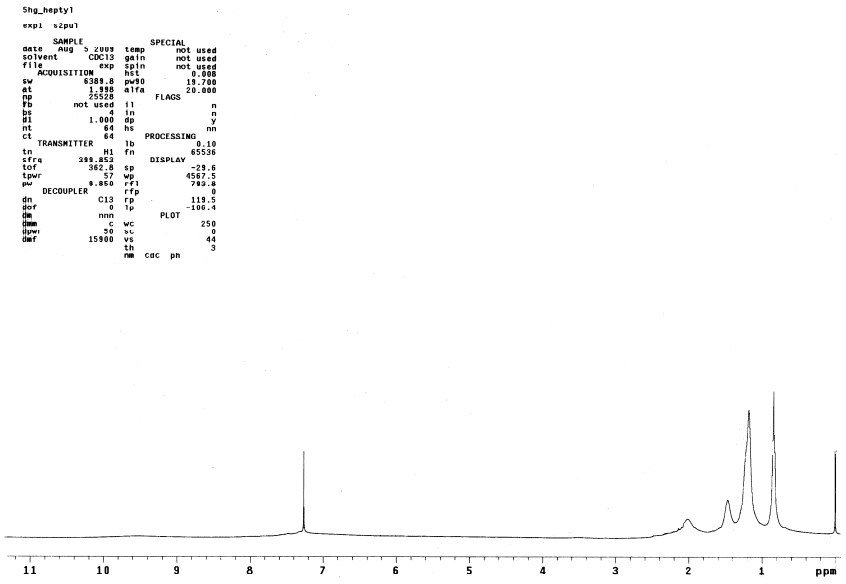
_N_-hydroxycyclohexanecarboxamide (10b): ^{1}H NMR (400 MHz, $CDCl_3$):



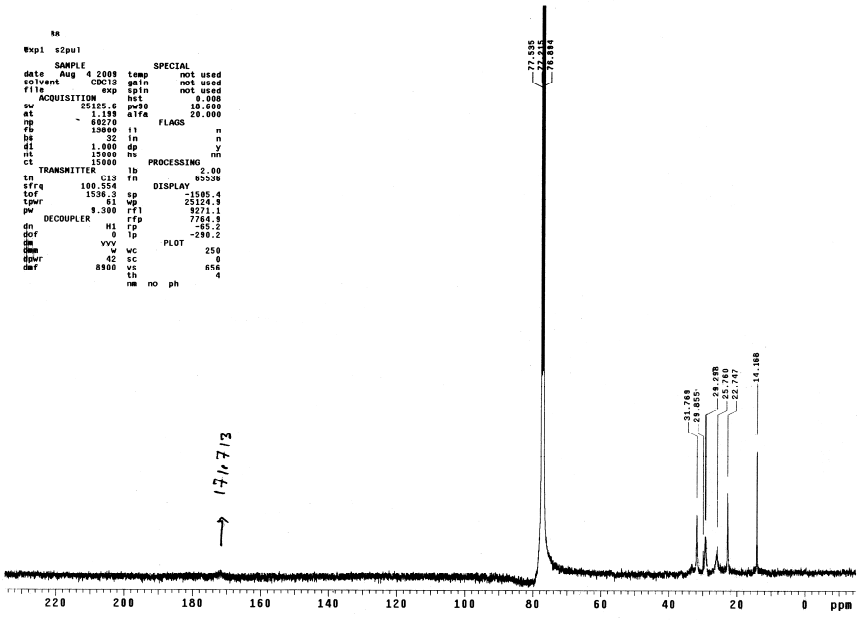
_N_-hydroxycyclohexanecarboxamide (10b): ^{13}C NMR (100 MHz, $CDCl_3$ + DMSO-d_6)



_N_-hydroxyheptanamide (12b): ^{1}H NMR (400 MHz, $CDCl_3$):



N-hydroxyheptanamide (12b): ^{13}C NMR (100 MHz, $CDCl_3$)



_N_-Acetoxy-benzamide (1a) + _N_-Propionyloxy-benzamide (1c): ^{1}H NMR (400 MHz, $CDCl_3$): (59:41)