Supplementary Material

Alum Catalysed Domino Synthesis of 12-Substituted-8,9,10,12-tetrahydrobenzoxanthen-11-ones Under Solvent-Free Conditions

Rajan Kumar Sharma¹, Rajni Khajuria¹, Kamal K. Kapoor¹

¹Department of Chemistry, University of Jammu, Jammu 180006, India

E-mail: k2kapoor@yahoo.com

¹H and ¹³C NMR Spectra of compounds (4/5)

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¹H NMR of 9,9-Dimethyl-12-phenyl-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-phenyl-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(4-methylphenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-(4-methylphenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(4-methoxyphenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-(4-methoxyphenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(4-chlorophenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-(4-chlorophenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(2-chlorophenyl)-9,10-dihydro-8*H*-benzo[*a*]xanthen-11(12*H*)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-(2-chlorophenyl)-9,10-dihydro-8*H*-benzo[*a*]xanthen-11(12*H*)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(4-bromophenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-(4-bromophenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(3-nitrophenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-(3-nitrophenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(4-nitrophenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-(4-nitrophenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(4-dimethylaminophenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃ + DMSO-d₆

¹³C NMR of 9,9-Dimethyl-12-(4-dimethylaminophenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃ + DMSO-d₆

¹H NMR of 9,9-Dimethyl-12-(2-hydroxyphenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃ + DMSO-d₆

¹³C NMR of 9,9-Dimethyl-12-(2-hydroxyphenyl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃ + DMSO-d₆

¹H NMR of 9,9-Dimethyl-12-styryl-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-styryl-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-[4-(9,9-dimethyl-9,10-dihydro-8*H*-benzo[*a*]xanthen-11(12*H*)-one-12yl)phenyl]-9,10-dihydro-8*H*-benzo[*a*]xanthen-11(12*H*)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-[4-(9,9-dimethyl-9,10-dihydro-8*H*-benzo[*a*]xanthen-11(12*H*)-one-12yl)phenyl]-9,10-dihydro-8*H*-benzo[*a*]xanthen-11(12*H*)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(naphthalen-1-yl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-(naphthalen-1-yl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(thiophen-2-yl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-(thiophen-2-yl)-9,10-dihydro-8H-benzo[a]xanthen-11(12H)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(4-chlorophenyl)-9,10-dihydro-8*H*-benzo[*c*]xanthen-11(12*H*)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-(4-chlorophenyl)-9,10-dihydro-8*H*-benzo[*c*]xanthen-11(12*H*)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(4-nitrophenyl)-9,10-dihydro-8H-benzo[c]xanthen-11(12H)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-(4-nitrophenyl)-9,10-dihydro-8H-benzo[c]xanthen-11(12H)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(4-bromophenyl)-9,10-dihydro-8H-benzo[c]xanthen-11(12H)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-(4-bromophenyl)-9,10-dihydro-8H-benzo[c]xanthen-11(12H)-one in CDCl₃

¹H NMR of 9,9-Dimethyl-12-(4-dimethylaminophenyl)-9,10-dihydro-8*H*-benzo[*c*]xanthen-11(12*H*)-one in CDCl₃

¹³C NMR of 9,9-Dimethyl-12-(4-dimethylaminophenyl)-9,10-dihydro-8*H*-benzo[*c*]xanthen-11(12*H*)-one in CDCl₃