

Application of biological-based nano and nano magnetic catalysts in the preparation of arylbispyranylmethanes

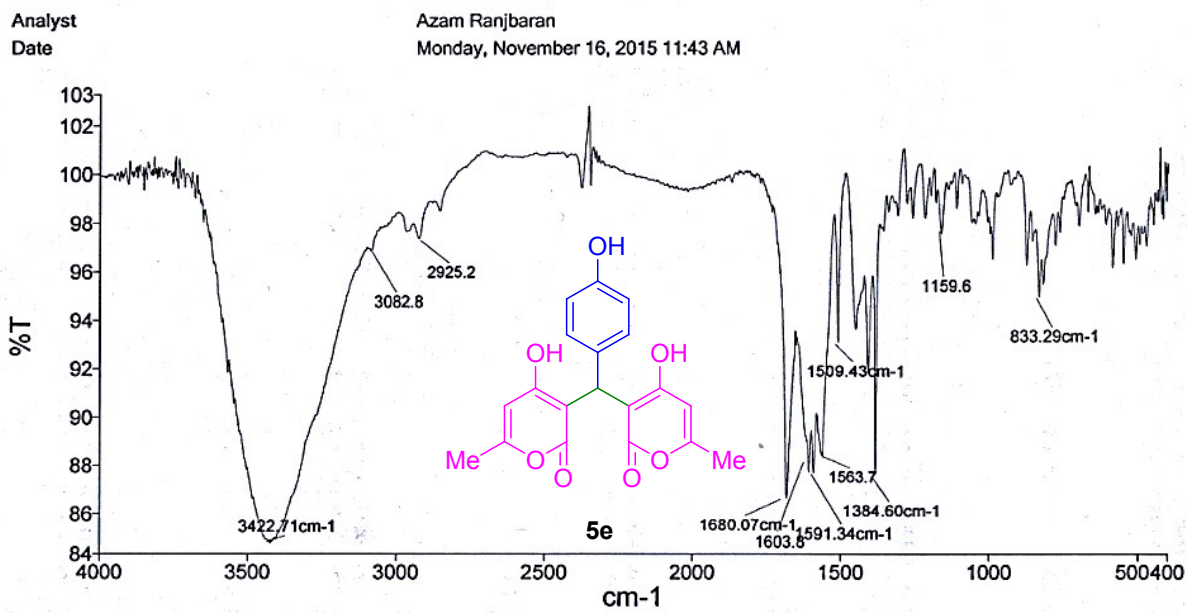
Mohammad Ali Zolfigol,* Monireh Navazeni, Meysam Yarie, Roya Ayazi-Nasrabadi*

Department of Organic Chemistry, Faculty of Chemistry, Bu-Ali Sina University, Hamedan, Po. Box: 6517838683, Iran. E-mail: zolfi@basu.ac.ir, mzolfigol@yahoo.com, & r.ayazi.86@gmail.com, Fax: +98 8138380709; Tel: +98 8138282807

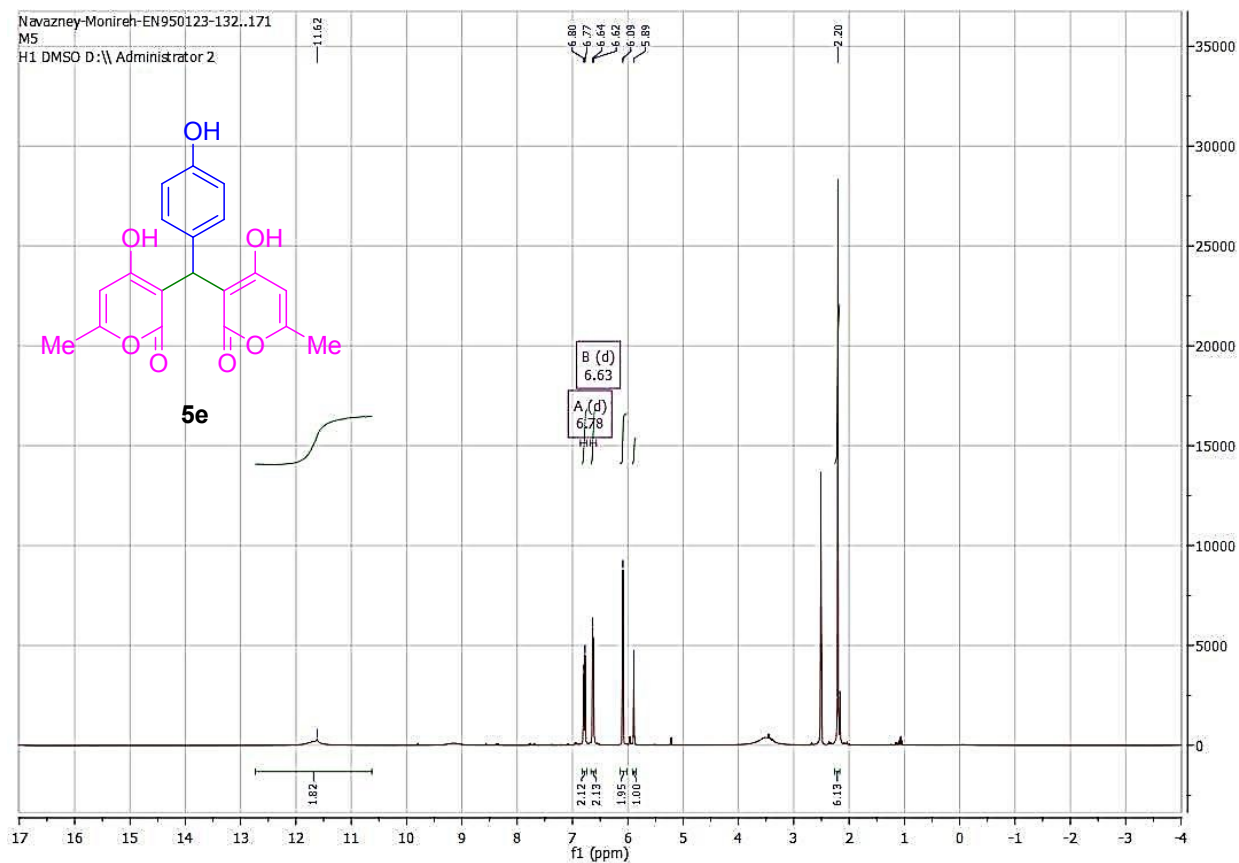
Table of content

- 1: FT-IR spectrum of 3,3'-((4-hydroxyphenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5e)
- 2: ¹H NMR spectrum of 3,3'-((4-hydroxyphenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5e)
- 3: ¹³C NMR spectrum of 3,3'-((4-hydroxyphenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5e)
- 4: FT-IR spectrum of 3,3'-((2,4-dichlorophenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5h)
- 5: ¹H NMR spectrum of 3,3'-((2,4-dichlorophenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5h)
- 6: ¹³C NMR spectrum of 3,3'-((2,4-dichlorophenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5h)
- 7: FT-IR spectrum of 3,3'-((2-chlorophenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5i)
- 8: ¹H NMR spectrum of 3,3'-((2-chlorophenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5i)
- 9: ¹³C NMR spectrum of 3,3'-((2-chlorophenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5i)

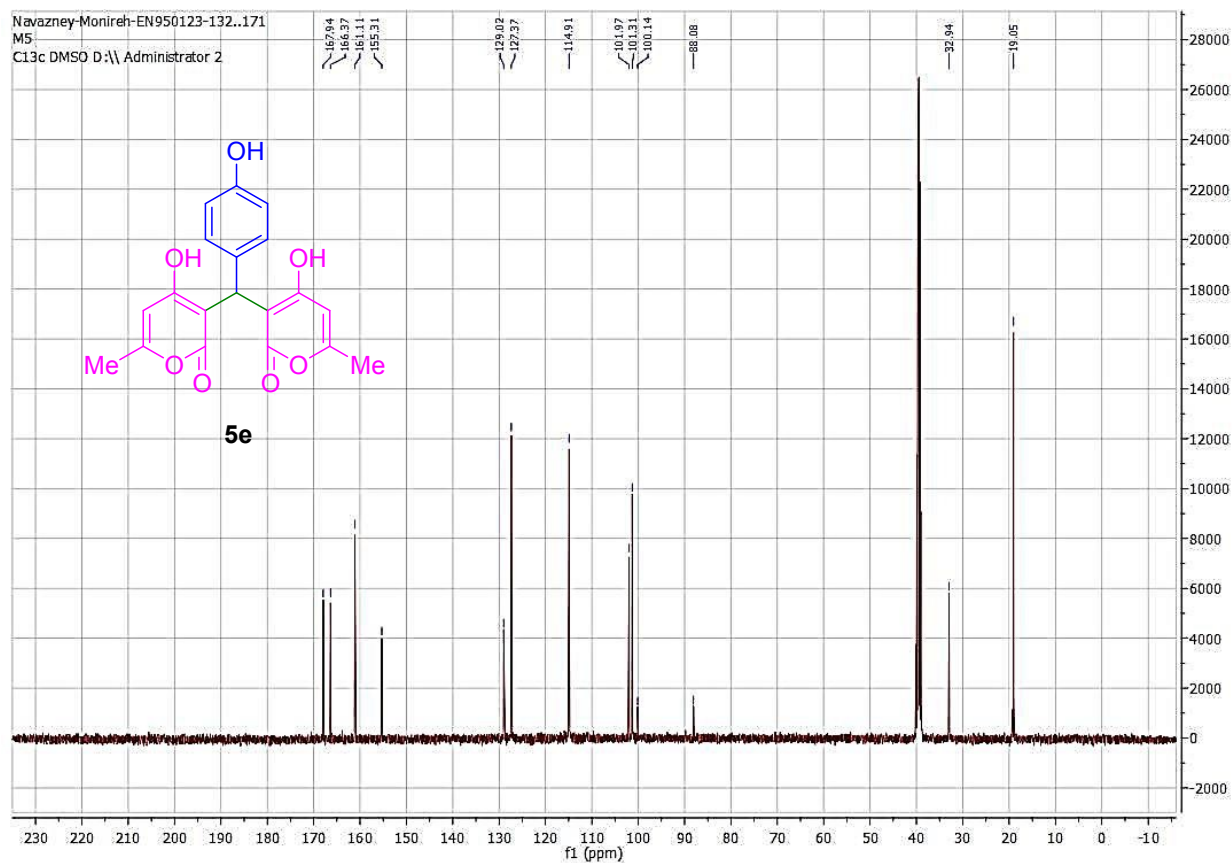
1: FT-IR spectrum of 3,3'-((4-hydroxyphenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5e)



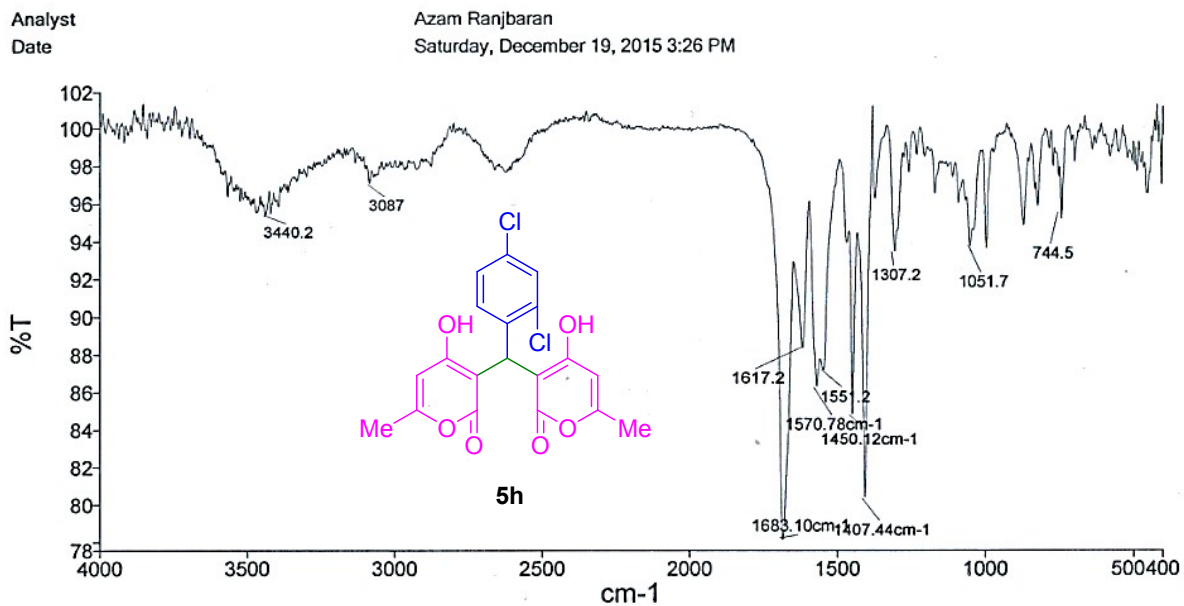
2: ¹H NMR spectrum of 3,3'-((4-hydroxyphenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5e)



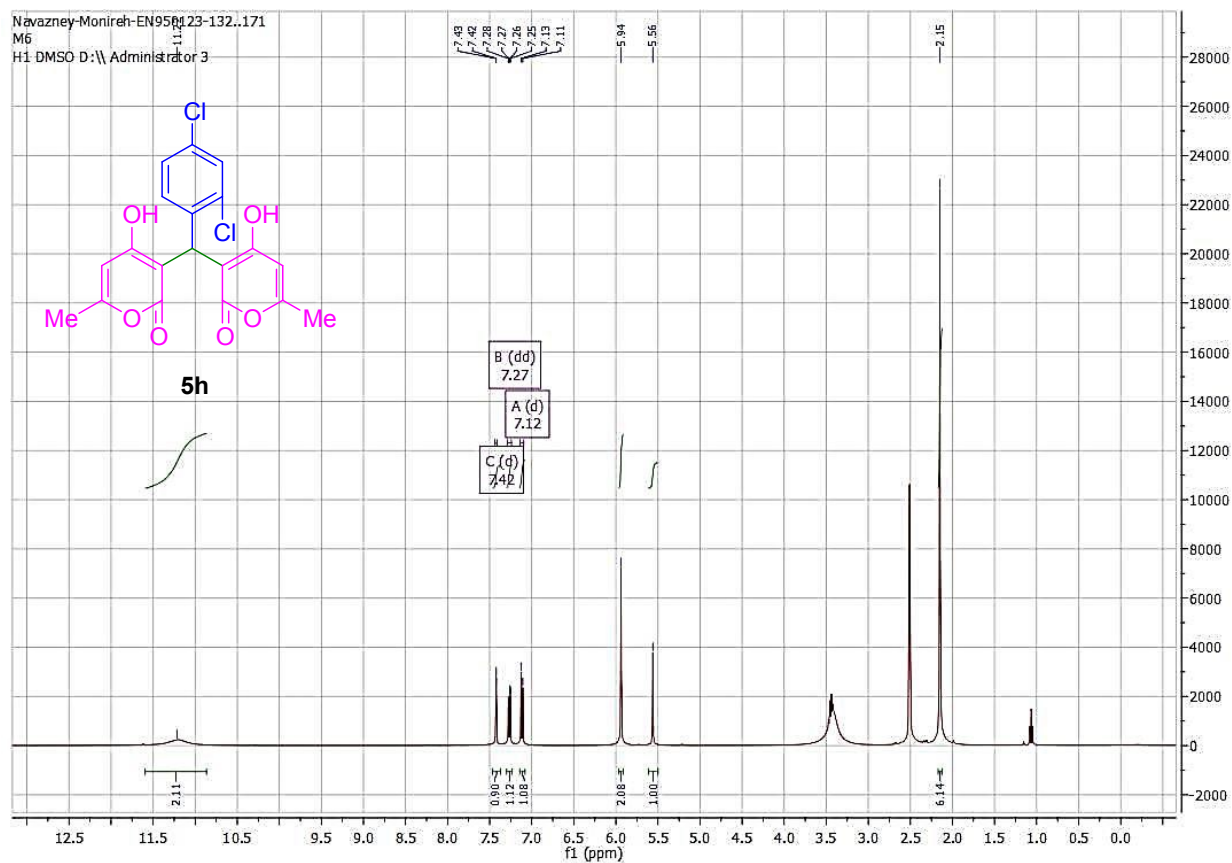
3: ^{13}C NMR spectrum of 3,3'-((4-hydroxyphenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5e)



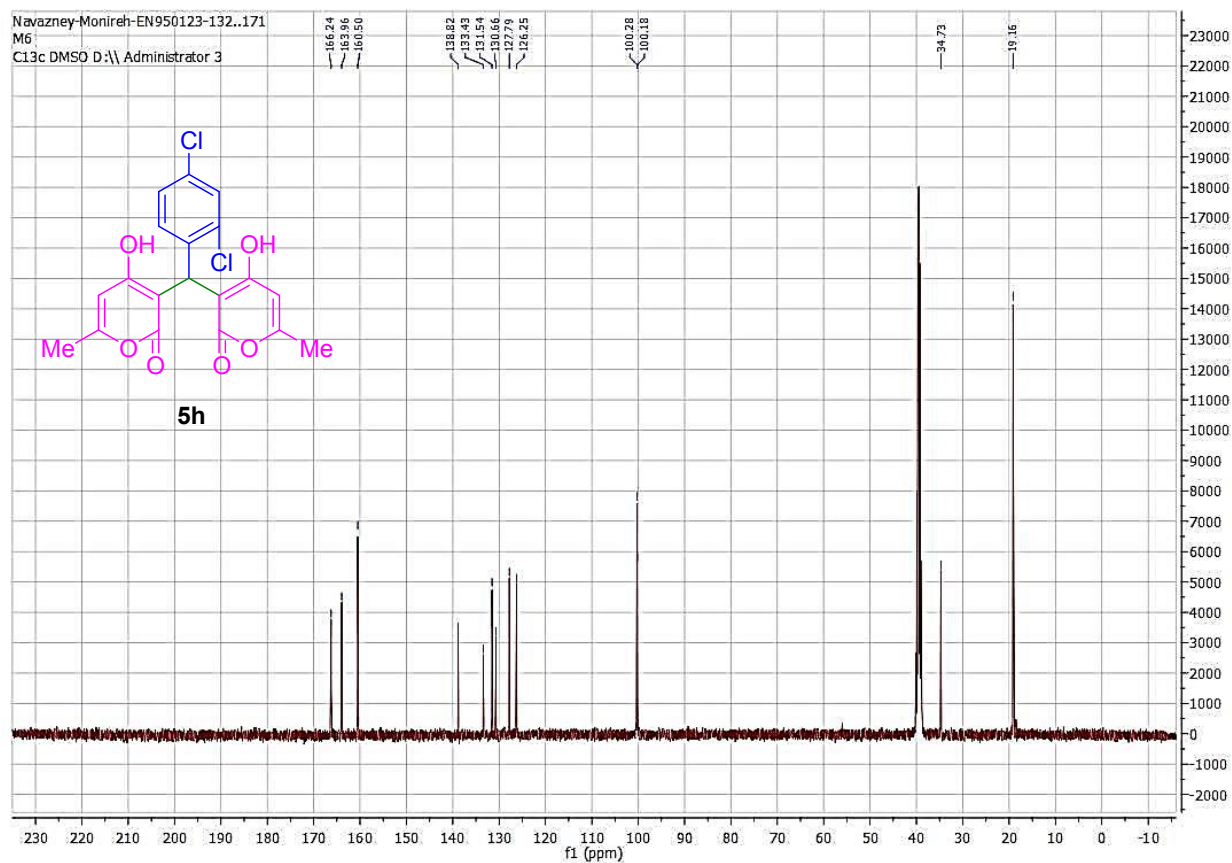
4: FT-IR spectrum of 3,3'-((2,4-dichlorophenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5h)



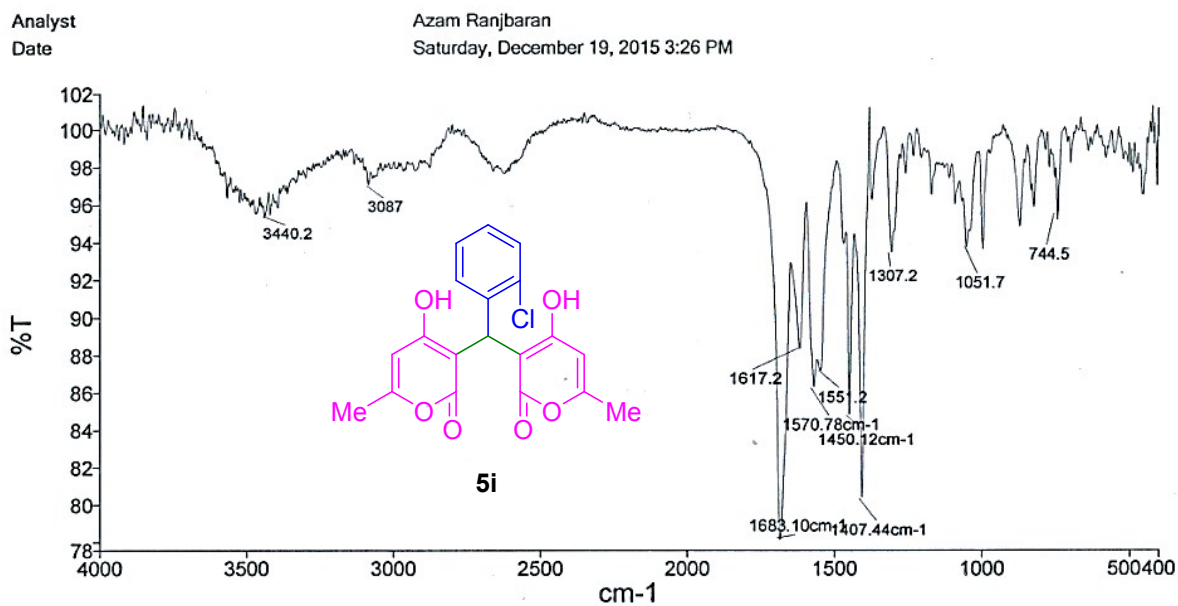
5: ¹H NMR spectrum of 3,3'-((2,4-dichlorophenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5h)



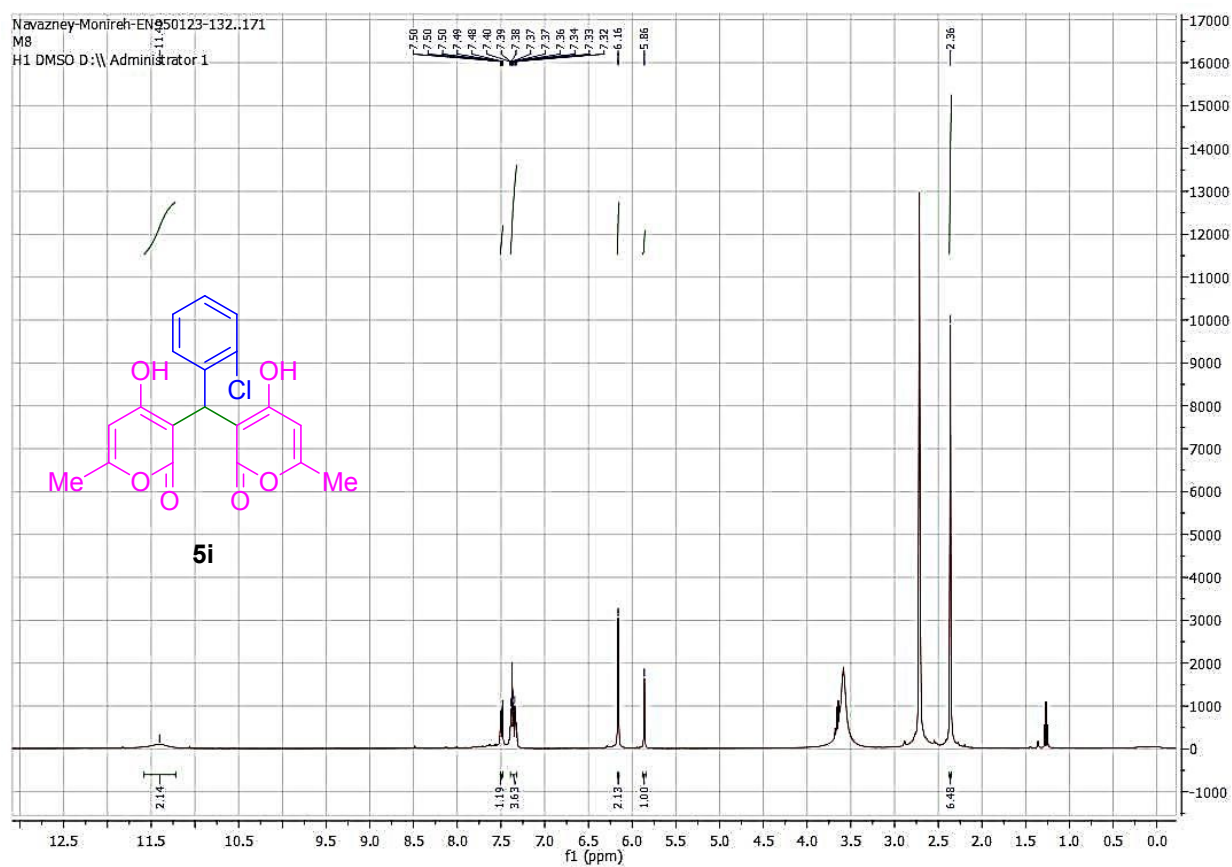
6: ¹³C NMR spectrum of 3,3'-((2,4-dichlorophenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5h)



7: FT-IR spectrum of 3,3'-((2-chlorophenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5i)



8: ^1H NMR spectrum of 3,3'-((2-chlorophenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5i)



9: ^{13}C NMR spectrum of 3,3'-((2-chlorophenyl)methylene)bis(4-hydroxy-6-methyl-2H-pyran-2-one) (5i)

