Supplementary Information

Ionophore silica-coated magnetite nanoparticles as a recyclable heterogeneous catalyst for one-pot green synthesis of 2,4,5-trisubstituted imidazoles

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Copy of $^1$H NMR, $^{13}$C NMR & FT IR spectrums of the synthesized compounds:

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2,4,5-triphenyl-1H-imidazole (2a)

Figure 1. \(^1\)H NMR spectrum of 2a

Figure 2. \(^{13}\)C NMR spectrum of 2a
2-(3-methoxy phenyl)-4,5-di phenyl-1H-imidazole (2b)

Figure 3. FT-IR spectrum of 2a

Figure 4. $^1$H NMR spectrum of 2b
Figure 5. $^{13}$C NMR spectrum of 2b

Figure 6. FT-IR spectrum of 2b
2-(3,4-dimethoxyphenyl)-4,5-diphenyl-1H-imidazole (2c)

Figure 7. $^1$H NMR spectrum of 2c

2-(4-methoxy phenyl)-4,5-diphenyl-1H-imidazole (2d)

Figure 8. $^1$HNMR spectrum of 2d
Figure 9. $^{13}$CNMR of 2d

Figure 10. FT IR spectrum of 2d
2-(2,3-dimethoxyphenyl)-4,5-diphenyl-1H-imidazole (2e)

Figure 11. $^1$HNMR spectrum of 2e

Figure 12. FT IR spectrum of 2e
2-(4-methylphenyl)-4,5-diphenyl-1H-imidazole (2f)

Figure 13. $^1$HNMR spectrum of 2f

Figure 14. $^{13}$CNMR of 2f
Figure 15. FT IR spectrum of 2f

2-(4,5-diphenyl-1H-imidazole-2-yl) phenol (2g)

Figure 16. $^1$HNMR spectrum of 2g
Figure 17. FT IR spectrum of 2g

4-(4,5-diphenyl-1H-imidazole-2-yl) phenol (2h)

Figure 18. $^1$HNMR spectrum of 2h
Figure 19. $^{13}$CNMR spectrum of 2h

Figure 20. $^{13}$CNMR spectrum of 2h
2-(3-methylphenyl)-4,5-diphenyl-1H-imidazole (2i)

Figure 21. $^1$HNMR spectrum of 2i

Figure 22. $^{13}$CNMR spectrum of 2i
2-(4-isopropyl phenyl)-4,5-diphenyl-1H-imidazole (2j)

Figure 23. FT IR spectrum of 2i

Figure 24. $^1$HNMR spectrum of 2j
Figure 25. $^{13}$CNMR spectrum of 2j

Figure 26. FT IR spectrum of 2j
2-(2-chlorophenyl)-4,5-diphenyl-1H-imidazole (2k)

Figure 27. $^1$HNMR spectrum of 2k

Figure 28. $^{13}$CNMR spectrum of 2k
Figure 29. FT IR spectrum of 2k

2-(2,3-dichlorophenyl)-4,5-diphenyl-1H-imidazole (2l)

Figure 30. $^1$HNMR spectrum of 2l
Figure 31. $^{13}$CNMR spectrum of 2l

Figure 32. FT IR spectrum of 2l
2-(4-chlorophenyl)-4,5-diphenyl-1H-imidazole (2m)

Figure 33. $^1$HNMR spectrum of 2m

Figure 34. $^{13}$CNMR spectrum of 2m
2-(2,4-dichlorophenyl)-4,5-diphenyl-1H-imidazole (2n)

Figure 35. FT-IR spectrum of 2m

Figure 36. $^1$HNMR spectrum of 2n