Supplementary Material

Synthesis of N-acylbenzotriazole using acid anhydride

Rajesh K. Pandey,^a,b Ramanand Prajapati,^a Monika Gupta,^b Chatrasal S. Rajput,^a Arunendra Pathak,^a Anoop S. Singh*^a

^aChemistry Innovation Research Center, Jubilant Biosys Ltd, Greater Noida, Uttar Pradesh-201310, India
^bSchool of Basic Sciences, Department of Chemistry, Babu Banarasi Das University, Lucknow, Uttar Pradesh-227015, India

Email: anoopshyambhu7@gmail.com; anoop.singh4@jubilantbiosys.com

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$^{1}$H and $^{13}$C NMR Spectra of $N$-acyl-benzotriazole (2a-2y)

**Spectra 1.** $^{1}$H NMR (400 MHz, CDCl$_3$) of compound 2a [With the impurity of water (1.54 ppm) and grease (1.27, 0.85 ppm)]
Spectra 2. $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 2a
Spectra 3. $^1$H NMR (400 MHz, CDCl3) of compound 2b [With the impurity of water (1.54 ppm), methanol (3.51 ppm) and grease (1.27, 0.83 ppm)]
Spectra 4. $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 2b
Spectra 5. $^1$H NMR ($400 \text{ MHz, }$ CDCl$_3$) of compound 2c [With the impurity of water (1.54 ppm), methanol (3.55 ppm), acetone (2.17 ppm) and grease (1.27, 0.86 ppm)]
**Spectra 6.** $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 2c
Spectra 7. $^1$H NMR (400 MHz, CDCl$_3$) of compound 2d [With the impurity of water (1.54 ppm) and grease (1.27, 0.86 ppm)]
Spectra 8. $^{13}$C NMR (100 MHz, DMSO-$d_6$) of compound 2d
Spectra 9. $^1$H NMR (400 MHz, CDCl$_3$) of compound 2e
Spectra 10. $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 2e
Spectra 11. $^1$H NMR (400 MHz, CDCl$_3$) of compound 2f
Spectra 12. $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 2f
Spectra 13. $^1$H NMR (400 MHz, CDCl₃) of compound 2g [With the impurity of water (1.54 ppm)]
Spectra 14. $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 2g
Spectra 15. $^1$H NMR (400 MHz, CDCl$_3$) of compound 2h [With the impurity of water (1.54 ppm) and grease (1.27, 0.86 ppm)]
Spectra 16. $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 2h
Spectra 17. $^1$H NMR (400 MHz, CDCl$_3$) of compound 2i [With the impurity of water (1.54 ppm), methanol (3.54 ppm), Acetone (2.17 ppm) and grease (1.27, 0.86 ppm)]
Spectra 18. $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 2i
Spectra 19. $^1$H NMR (400 MHz, CDCl$_3$) of compound 2j [With the impurity of water (1.54 ppm) and grease (1.27 ppm, 0.83 ppm)]
Spectra 20. $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 2j
Spectra 21. $^1$H NMR (400 MHz, CDCl$_3$) of compound 2k [With the impurity of Dichloromethane (5.29 ppm), water (1.57 ppm) and grease (1.28, 0.85 ppm)]
Spectra 22. $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 2k
Spectra 23. $^1$H NMR (400 MHz, CDCl$_3$) of compound 21 [With the impurity of water (1.54 ppm) and grease (1.25, 0.83 ppm)]
Spectra 24. $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 21
Spectra 25. $^1$H NMR (400 MHz, CDCl$_3$) of compound 2m [With the impurity of water (1.54 ppm) and grease (1.28, 0.86 ppm)]
Spectra 26. $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 2m
Spectra 27. $^1$H NMR (400 MHz, CDCl$_3$) of compound 2n [With the impurity of water (1.55 ppm) and grease (1.27, 0.86 ppm)]
**Spectra28.** $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 2n
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**Spectra 30.** $^{13}$C NMR (100 MHz, CDCl$_3$) of compound 2o
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