Efficient synthesis of highly soluble and functionalized fulleropyrrolidines

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2,4-bis(n-hexadecyloxy)benzaldehyde (3a) (IR) -----S1 2.4-bis(n-hexadecyloxy)benzaldehyde (**3a**) (¹H NMR) -----S2 2.4-bis(n-hexadecyloxy)benzaldehyde (3a) (¹³C NMR) -----S3 3,4-Bis(n-decyloxy)benzaldehyde (**3b**) (IR) -----S4 -----S5 3,4-Bis(n-decyloxy)benzaldehyde (**3b**) (¹H NMR) (**3b**) (¹³C NMŘ) 3,4-Bis(n-decyloxy)benzaldehvde -----S6 -----S7 3.4-Bis(n-octadecvloxy)benzaldehvde (**3c**) (IR) 3.4-Bis(n-octadecyloxy)benzaldehyde (3c) (¹H NMR) -----S8 3.4-Bis(n-octadecyloxy)benzaldehyde (3c) (¹³C NMR) -----S9 2,3,4-Tris(n-heptyloxy)benzaldehyde (**3d**) (IR) -----S10 2,3,4-Tris(n-heptyloxy)benzaldehyde -----S11 (**3d**) (¹H NMR) 2,3,4-Tris(n-heptyloxy)benzaldehyde (3d) (¹³C NMR) -----S12 4-Decyloxybenzaldehyde (**3e**) (IR) -----S13 4-Decyloxybenzaldehyde (**3e**) (¹H NMR) -----S14 4-Decyloxybenzaldehyde (**3e**) (¹³C NMR) -----S15 4-Octadecyloxybenzaldehyde (**3f)** (IR) -----S16 (**3f**) (¹H NMR) -----S17 4-Octadecyloxybenzaldehyde 4-Octadecyloxybenzaldehyde (**3f**) (¹³C NMR) -----S18 3-Methoxy-4-octadecyloxybenzaldehyde (3g) (IR) -----S19 3-Methoxy-4-octadecyloxybenzaldehyde (**3g**) (¹H NMR) -----S20 3-Methoxy-4-octadecyloxybenzaldehyde (3g) (13C NMR) -----S21 N-methyl-2-(2.4-bis(n-hexadecyloxy)phenyl)fulleropyrrolidine (4a) (IR) -----S22 N-methyl-2-(2,4-bis(n-hexadecyloxy)phenyl)fulleropyrrolidine (4a) (¹H NMR) N-methyl-2-(2,4-bis(n-hexadecyloxy)phenyl)fulleropyrrolidine (4a) (¹³C NMR) -----S24 N-Methyl-2-(3,4-bis(n-decyloxy)phenyl)fulleropyrrolidine (4b) (IR) -----S25 N-Methyl-2-(3,4-bis(n-decyloxy)phenyl)fulleropyrrolidine (4b) (¹H NMR) -----S26 N-Methyl-2-(3,4-bis(n-decyloxy)phenyl)fulleropyrrolidine (4b) (¹³C NMR) -----S27 N-Methyl-2-(3,4-bis(n-octadecyloxy)phenyl)fulleropyrrolidine (4c) (IR) -----S28 N-Methyl-2-(3,4-bis(n-octadecyloxy)phenyl)fulleropyrrolidine (4c) (¹H NMR) -----S29 N-Methyl-2-(3,4-bis(n-octadecyloxy)phenyl)fulleropyrrolidine (4c) (¹³C NMR) -----S30 -----S31 N-Methyl-2-((2,3,4-tris(n-heptyloxy))phenyl)fulleropyrrolidine (4d) (IR) N-Methyl-2-((2,3,4-tris(n-heptyloxy))phenyl)fulleropyrrolidine (4d) (¹H NMR) -----S32 N-Methyl-2-((2,3,4-tris(n-heptyloxy))phenyl)fulleropyrrolidine (4d) (¹³C NMR) -----S33 N-Methyl-2-((4-decyloxy)phenyl)fulleropyrrolidine (4e) (IR) -----S34 N-Methyl-2-((4-decyloxy)phenyl)fulleropyrrolidine (4e) (¹H NMR) -----S35 N-Methyl-2-((4-decyloxy)phenyl)fulleropyrrolidine (4e) (¹³C NMR) -----S36

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Fig. S6. ¹³C NMR spectrum of **3b**.







Fig. S8. ¹H NMR spectrum of 3c.







Fig. S10. FT-IR spectrum of 3d.



Fig. S12. ¹³C NMR spectrum of 3d.



Fig. S14. ¹H NMR spectrum of 3e.







Fig. S16. FT-IR spectrum of 3f.



Fig. S18. ¹³C NMR spectrum of 3f.



Fig. S19. FT-IR spectrum of 3g.

















| Fig. S24. | ¹³ C NMR | spectrum | of 4a . |
|-----------|---------------------|----------|----------------|
|-----------|---------------------|----------|----------------|



Fig. S26. ¹H NMR spectrum of 4b.





Fig. S28. FT-IR spectrum of 4c.









Fig. S33. ¹³C NMR spectrum of 4d.







Fig. S36. ¹³C NMR spectrum of 4e.



Fig. S38. ¹H NMR spectrum of 4f.







Fig. S40. FT-IR spectrum of 4g.



Fig. S42. ¹³C NMR spectrum of 4g.







Fig. S44. ¹H NMR spectrum of 4h.



Wavenumber (cm-1)

Fig. S46. FT-IR spectrum of 4i.



Fig. S48. ¹³C NMR spectrum of 4i.







Fig. S50.MALDI-TOF mass spectrum of 4d.



Fig. S51.MALDI-TOF mass spectrum of 4g.



Fig. S52.MALDI-TOF mass spectrum of 4h.