

Supporting Information

Synthesis of alkaloids 3,3'-(pyridin-2-yl)methylene)bis(1*H*-substituted-indole) via infrared irradiation as heating and their evaluation antifungal against *Candida albicans*, *Cryptococcus neoformans* and *Aspergillus fumigatus*

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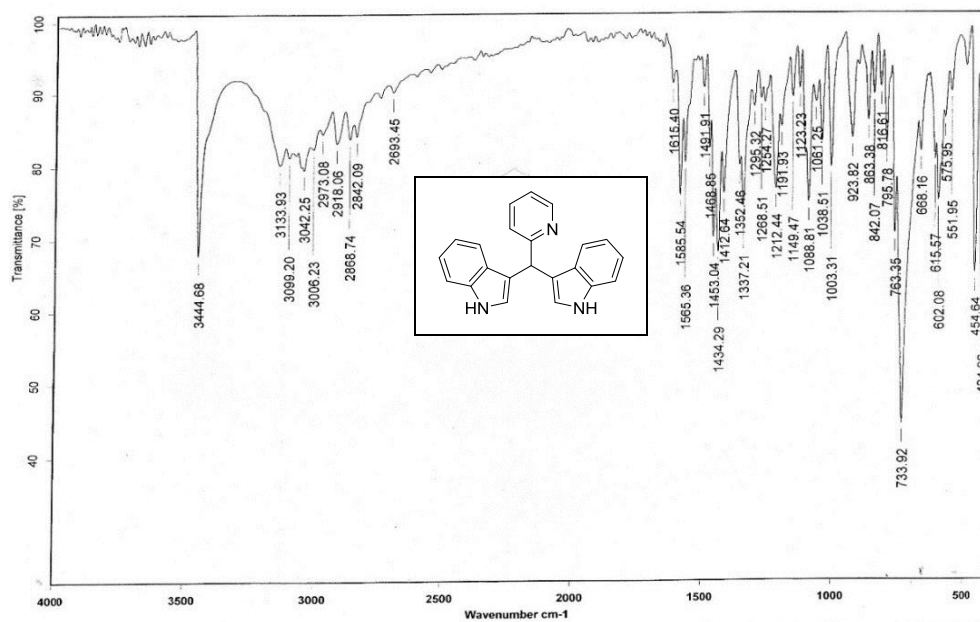
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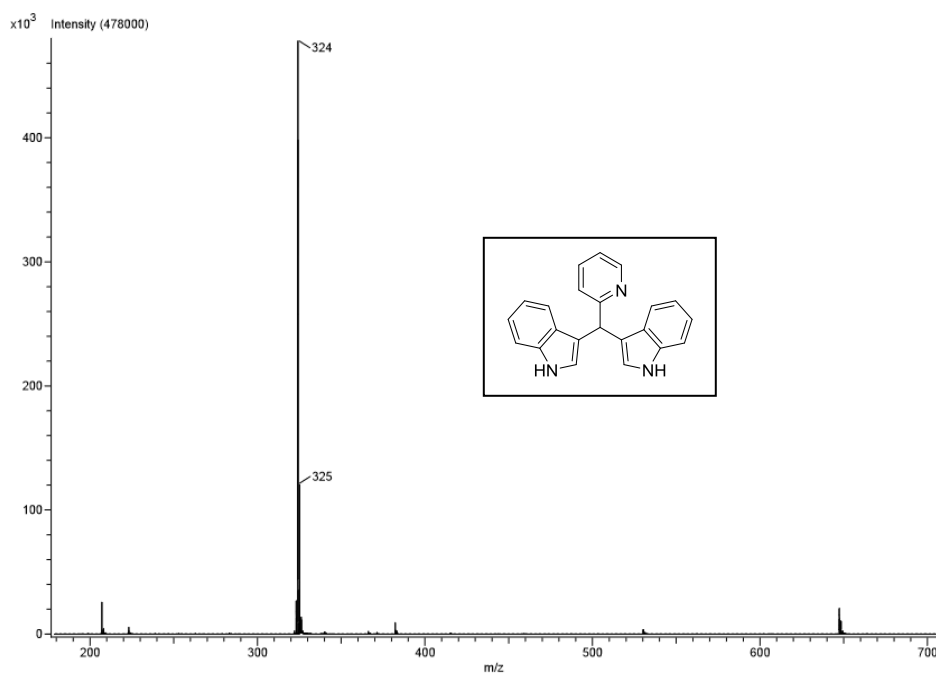
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FT-IR 3,3'-(pyridin-2-yl)methylenebis(1H-indole) (15)

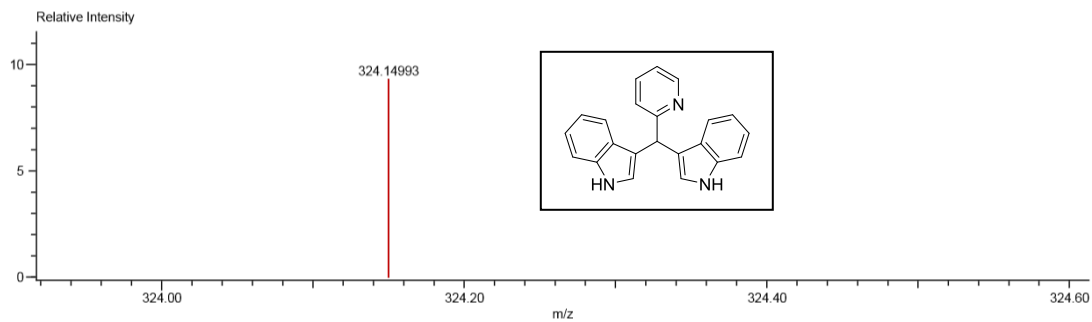


MS-DART 3,3'-(pyridin-2-yl)methylenebis(1H-indole) (15)

Charge number:1
Element:¹²C:0 .. 30, ¹H:0 .. 50, ¹⁴N:0 .. 5

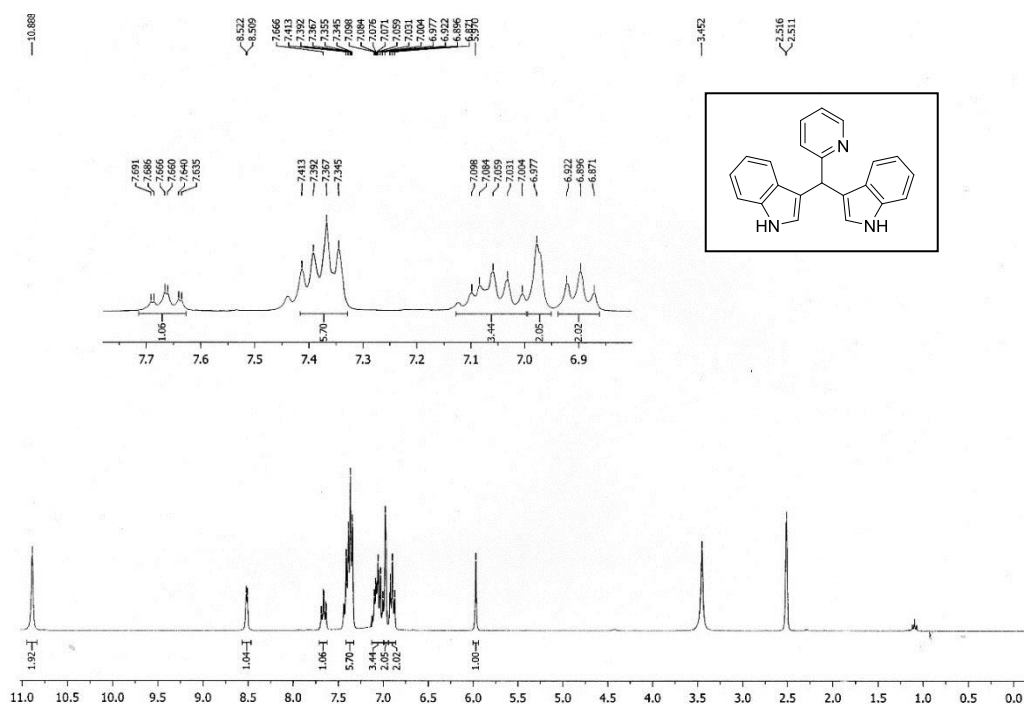
Tolerance:2.00(mmu)

Unsaturation Number:0.0 .. 100.0 (Fraction:.5)

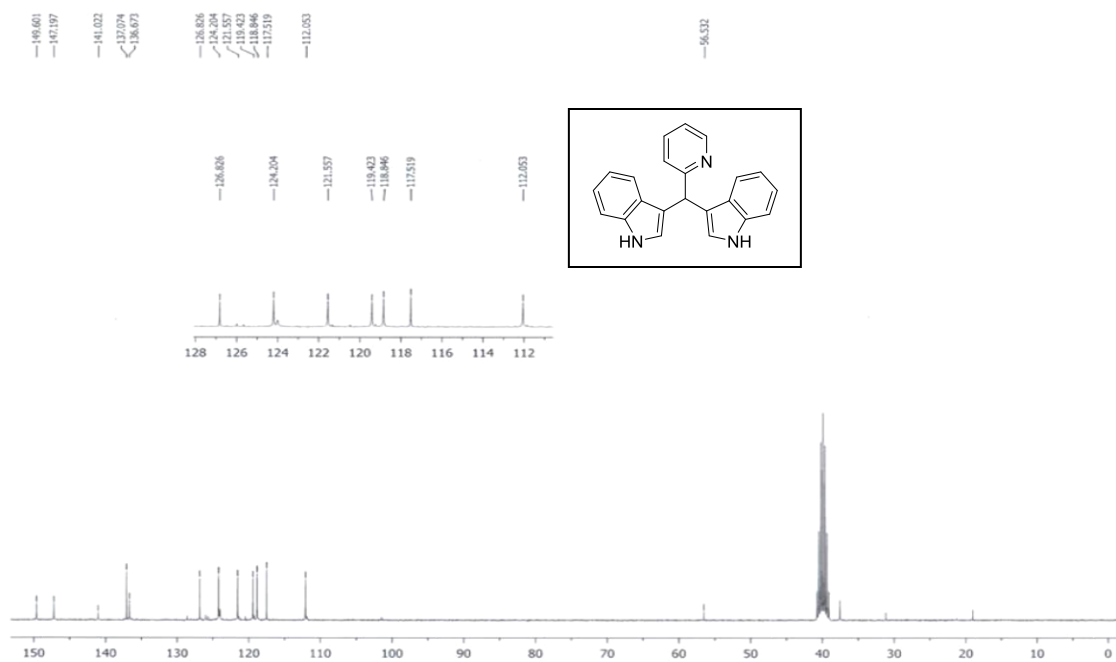


| Mass | Intensity | Calc. Mass | Mass Difference (mmu) | Mass Difference (ppm) | Possible Formula | Unsaturation Number |
|-----------|-----------|------------|-----------------------|-----------------------|---|---------------------|
| 324.14993 | 18554.22 | 324.15007 | -0.14 | -0.44 | ¹² C ₂₂ ¹ H ₁₈ ¹⁴ N ₃ | 15.5 |

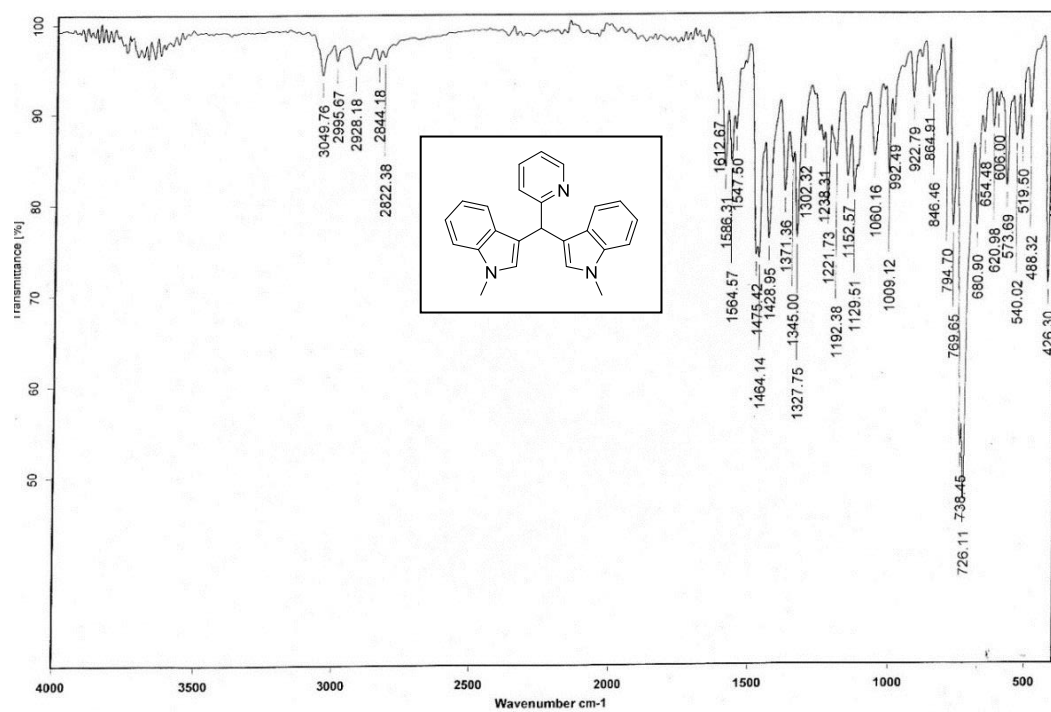
HRMS-DART 3,3'-(pyridin-2-yl)methylenebis(1H-indole) (15)



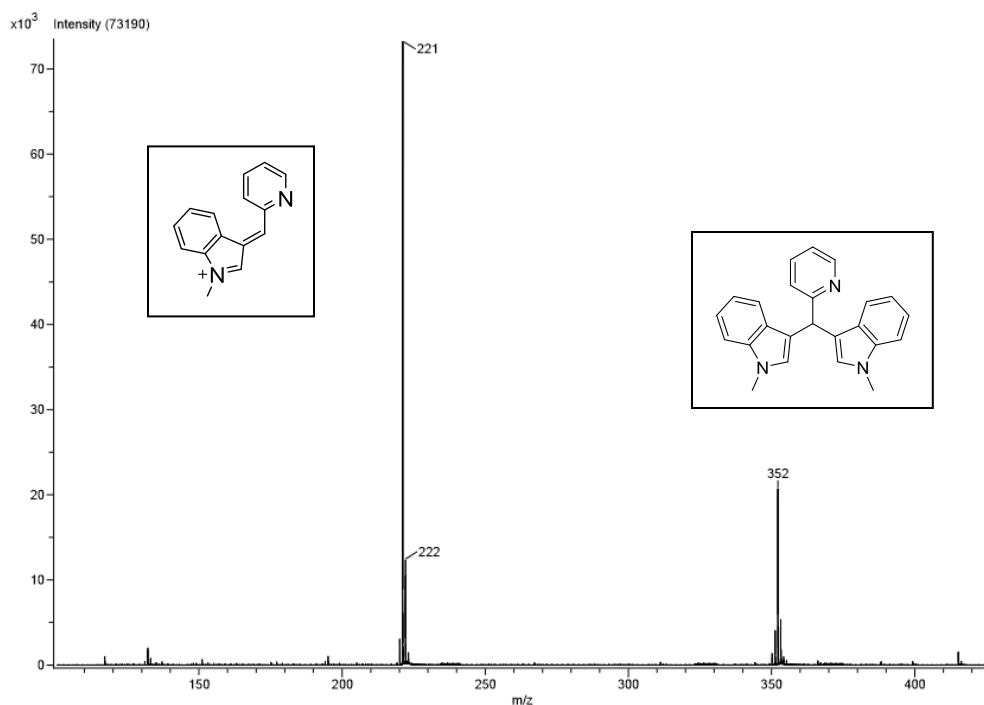
¹H NMR (300 MHz, DMSO-*d*₆) 3,3'-(pyridin-2-yl)methylenebis(1H-indole) (15)



¹³C NMR (75 MHz, DMSO-*d*₆) 3,3'-(pyridin-2-yl)methylenebis(1*H*-indole) (15)

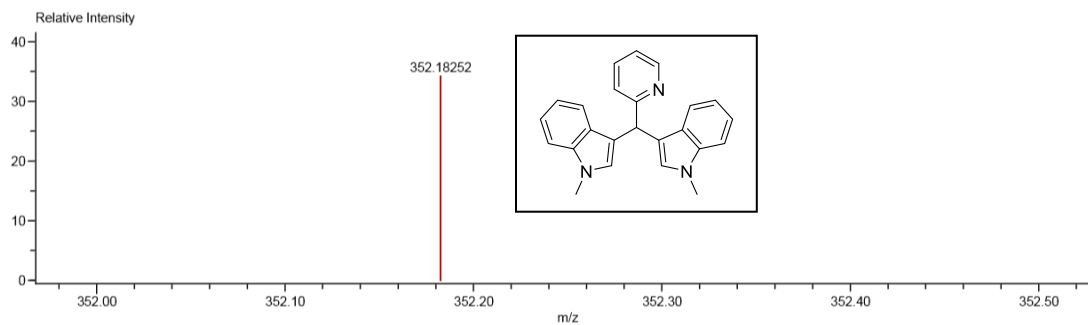


FT-IR 3,3'-(pyridin-2-yl)methylenebis(1-methyl-1*H*-indole) (16)



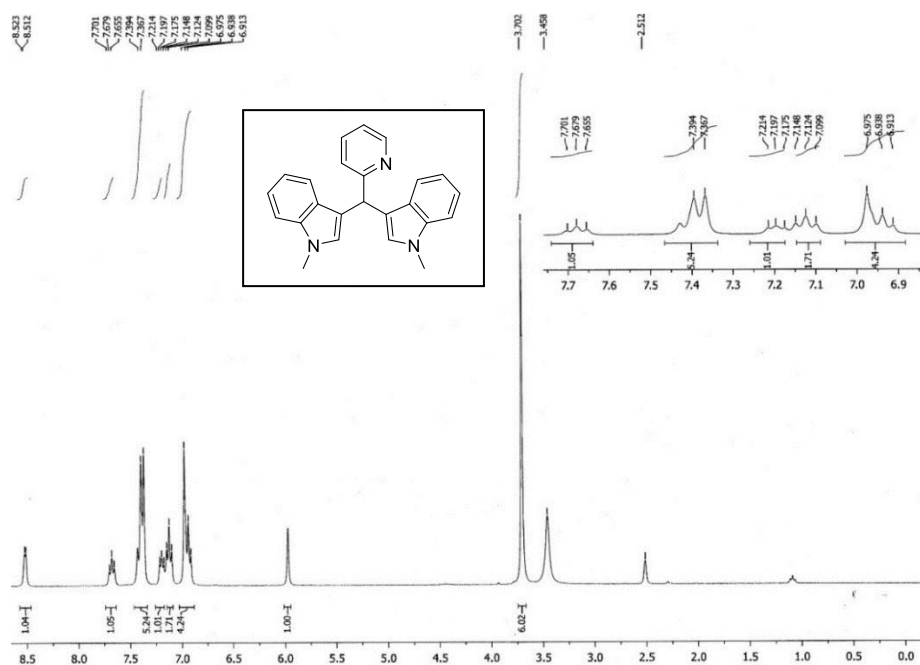
MS-DART 3,3'-(pyridin-2-yl)methylenebis(1-methyl-1H-indole) (16)

Charge number:1 Tolerance:20.00(ppm), 5.00 .. 15.00(mmu) Unsaturation Number:0.0 .. 100.0 (Fraction:Both)
 Element:¹²C:0 .. 30, ¹H:0 .. 60, ¹⁴N:0 .. 4

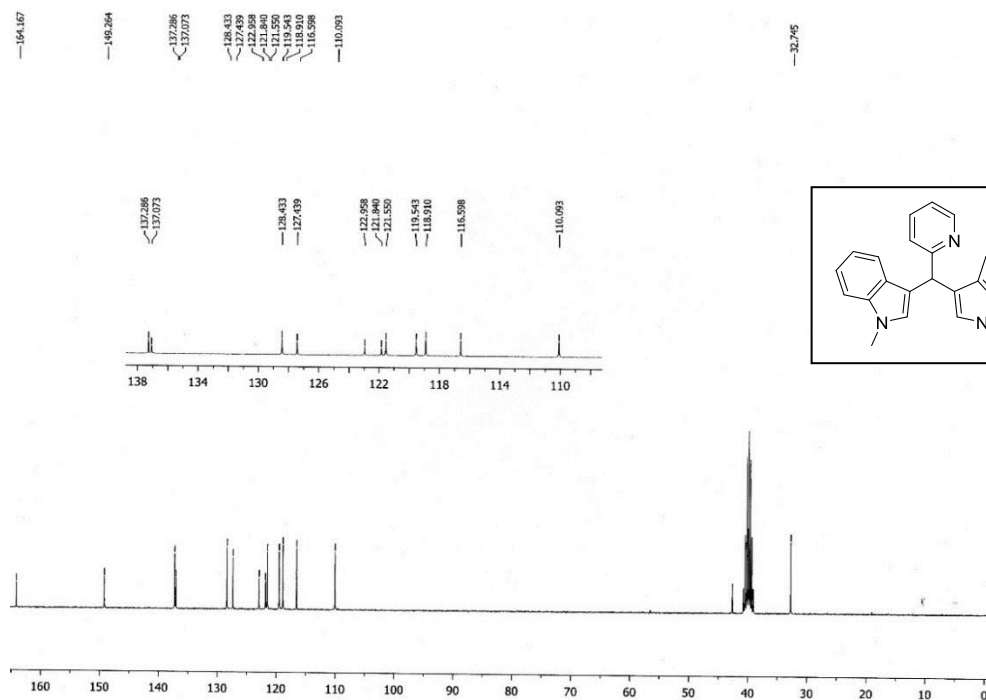


| Mass | Intensity | Calc. Mass | Mass Difference (mmu) | Mass Difference (ppm) | Possible Formula | Unsaturation Number |
|-----------|-----------|------------|-----------------------|-----------------------|---|---------------------|
| 352.18252 | 13553.93 | 352.18137 | 1.14 | 3.25 | ¹² C ₂₄ ¹ H ₂₂ ¹⁴ N ₃ | 15.5 |

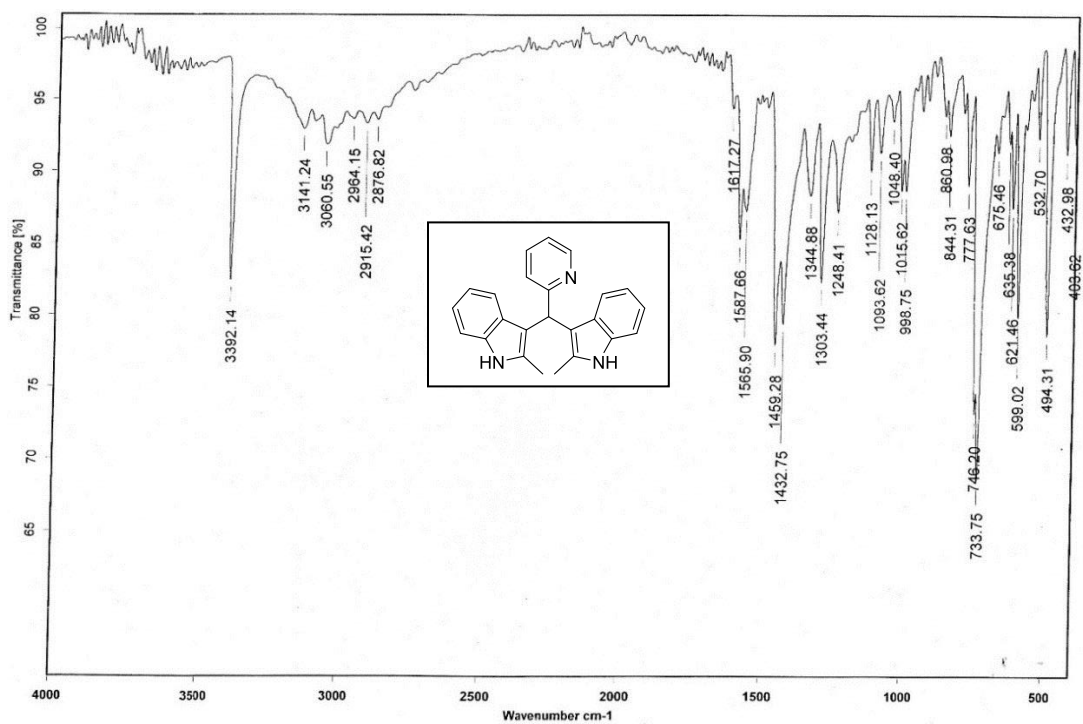
HRMS-DART 3,3'-(pyridin-2-yl)methylenebis(1-methyl-1H-indole) (16)



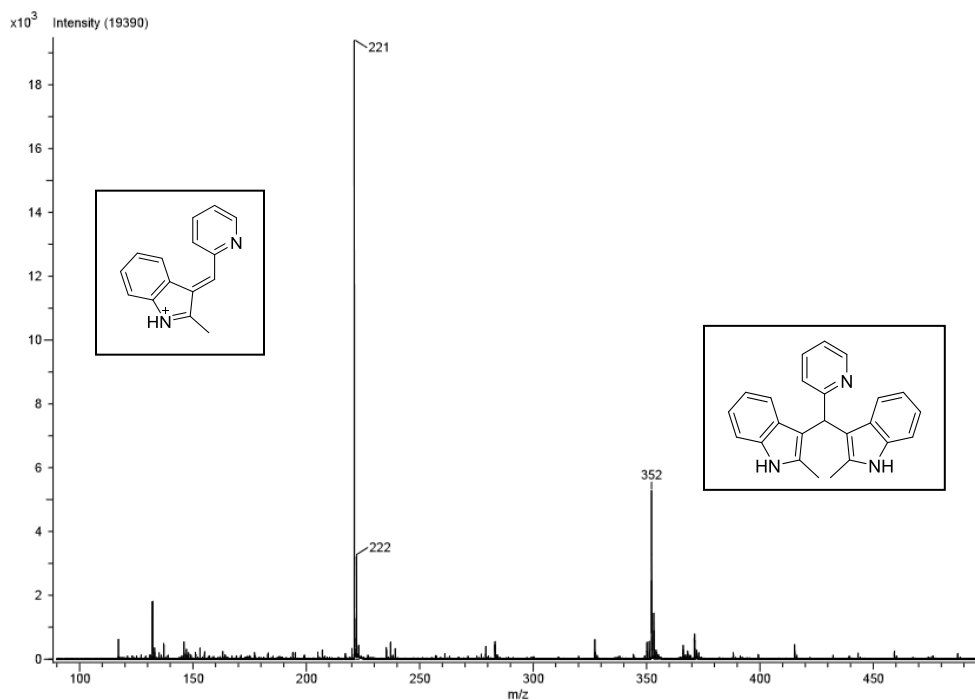
¹H NMR (300 MHz, DMSO-*d*₆) 3,3'-(pyridin-2-yl)methylenebis(1-methyl-1*H*-indole) (16)



¹³C NMR (75 MHz, DMSO-*d*₆) 3,3'-(pyridin-2-yl)methylenebis(1-methyl-1*H*-indole) (16)



FT-IR 3,3'-(pyridin-2-yl)methylenebis(2-methyl-1H-indole) (17)

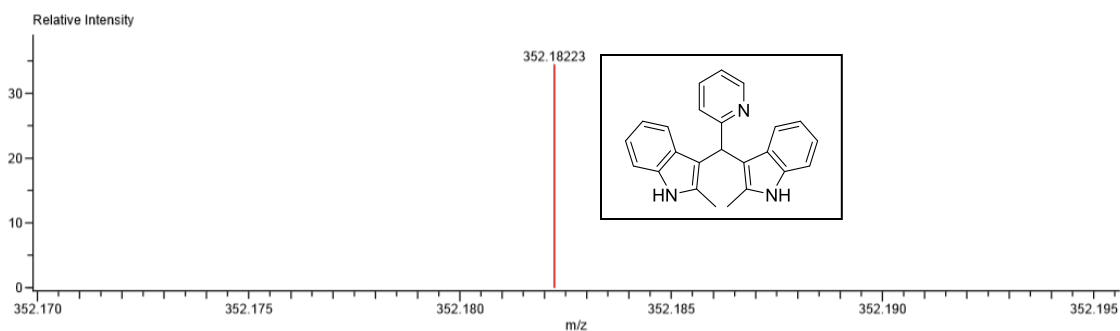


MS-DART 3,3'-(pyridin-2-yl)methylenebis(2-methyl-1H-indole) (17)

Charge number:1
Element:¹²C:0 .. 30, ¹H:0 .. 60, ¹⁴N:0 .. 4

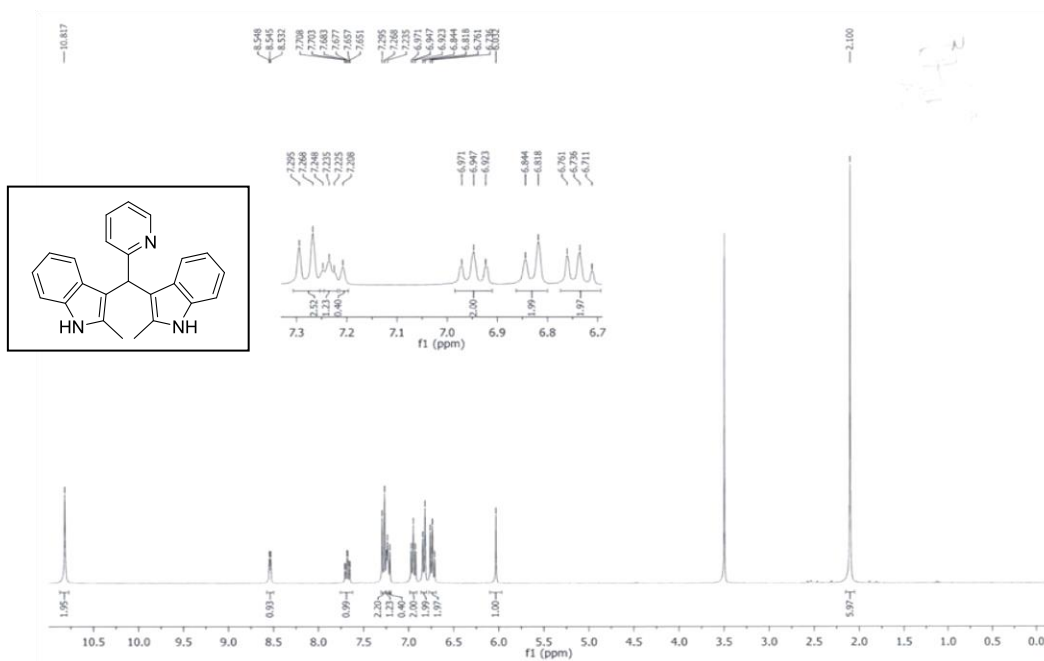
Tolerance:20.00(ppm), 5.00 .. 15.00(mmu)

Unsaturation Number:0.0 .. 100.0 (Fraction:Both)

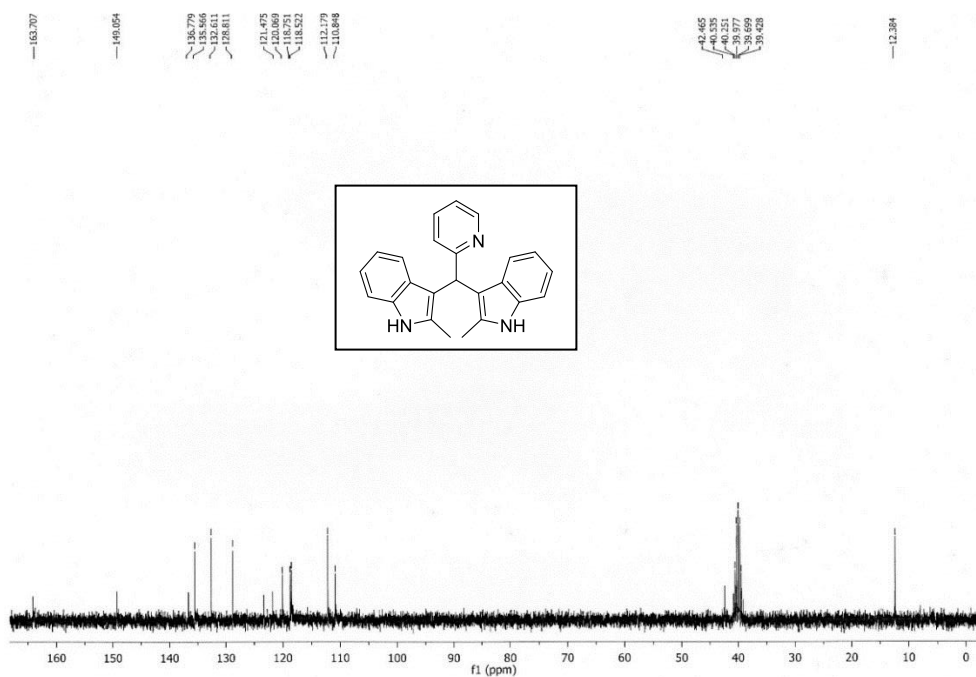


| Mass | Intensity | Calc. Mass | Mass Difference (mmu) | Mass Difference (ppm) | Possible Formula | Unsaturation Number |
|-----------|-----------|------------|-----------------------|-----------------------|---|---------------------|
| 352.18223 | 34288.58 | 352.18137 | 0.85 | 2.43 | ¹² C ₂₄ ¹ H ₂₂ ¹⁴ N ₃ | 15.5 |

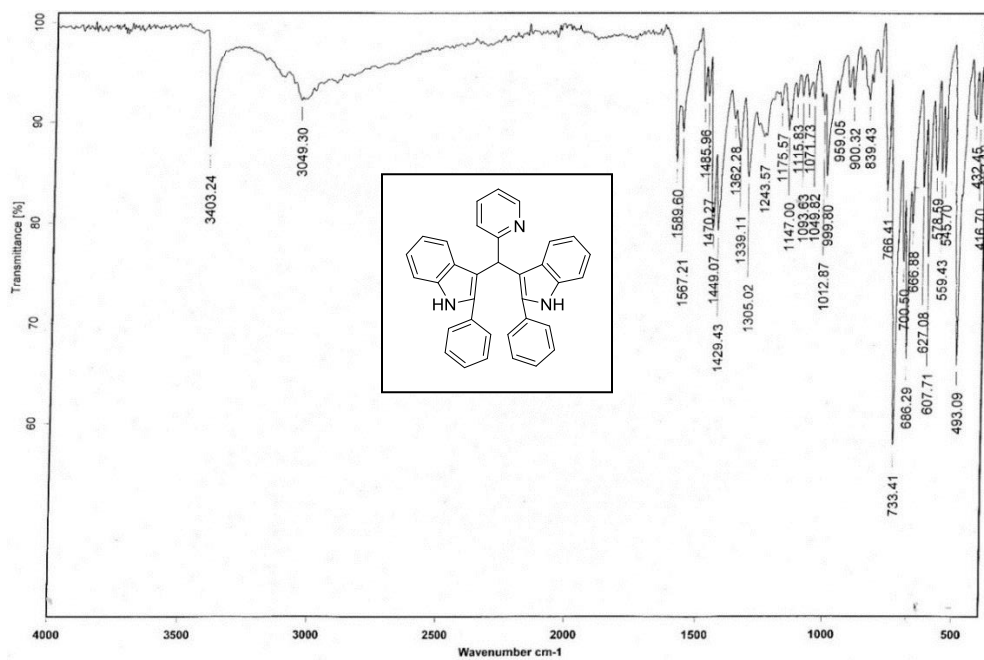
HRMS-DART 3,3'-(pyridin-2-yl)methylenebis(2-methyl-1H-indole) (17)



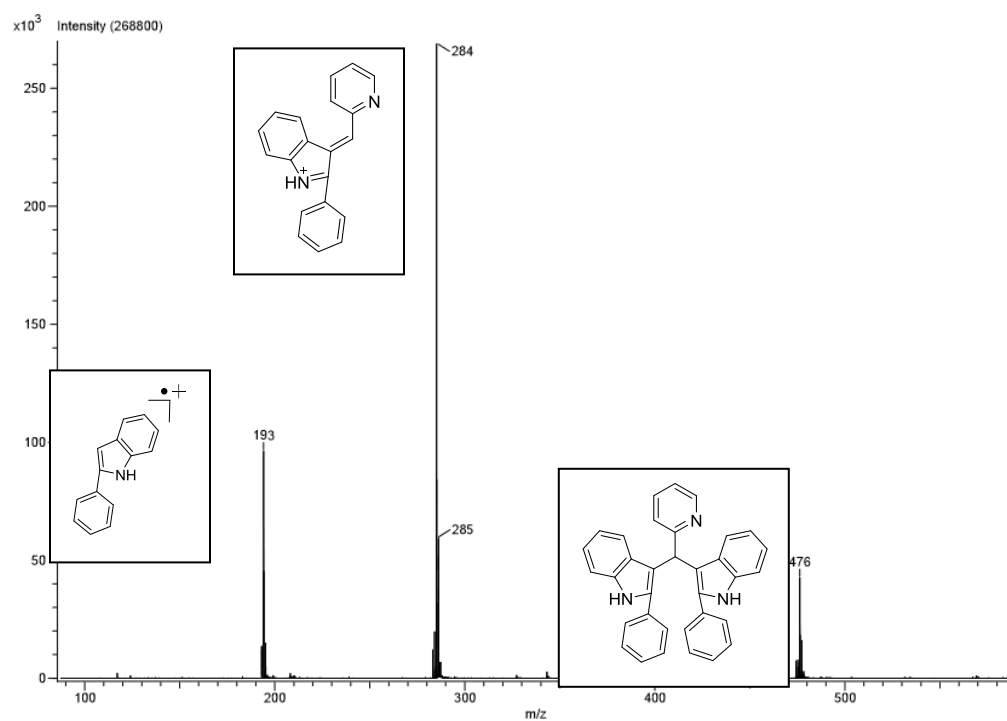
¹H NMR (300 MHz, DMSO-*d*₆) 3,3'-(pyridin-2-yl)methylenebis(2-methyl-1H-indole) (17)



¹³C NMR (75 MHz, DMSO-*d*₆) 3,3'-(pyridin-2-yl)methylenebis(2-methyl-1H-indole) (17)



FT-IR 3,3'-(pyridin-2-yl)methylenebis(2-phenyl-1H-indole) (18)

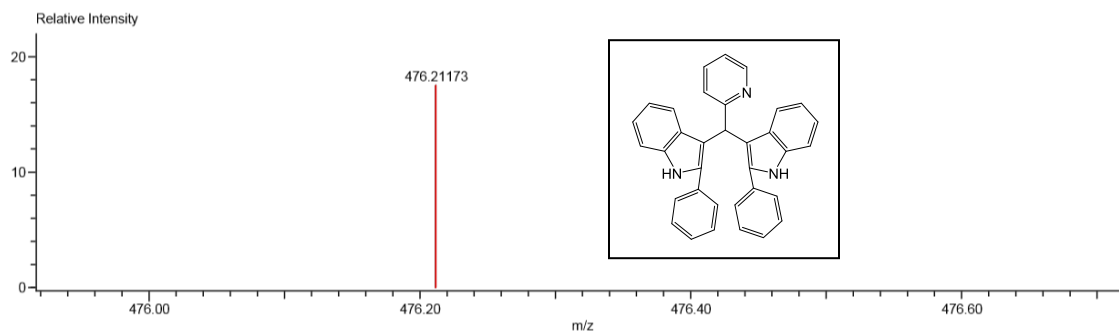


MS-DART 3,3'-(pyridin-2-yl)methylenebis(2-phenyl-1H-indole) (18)

Charge number:1
Element:¹²C:0 .. 40, ¹H:0 .. 60, ¹⁴N:0 .. 4

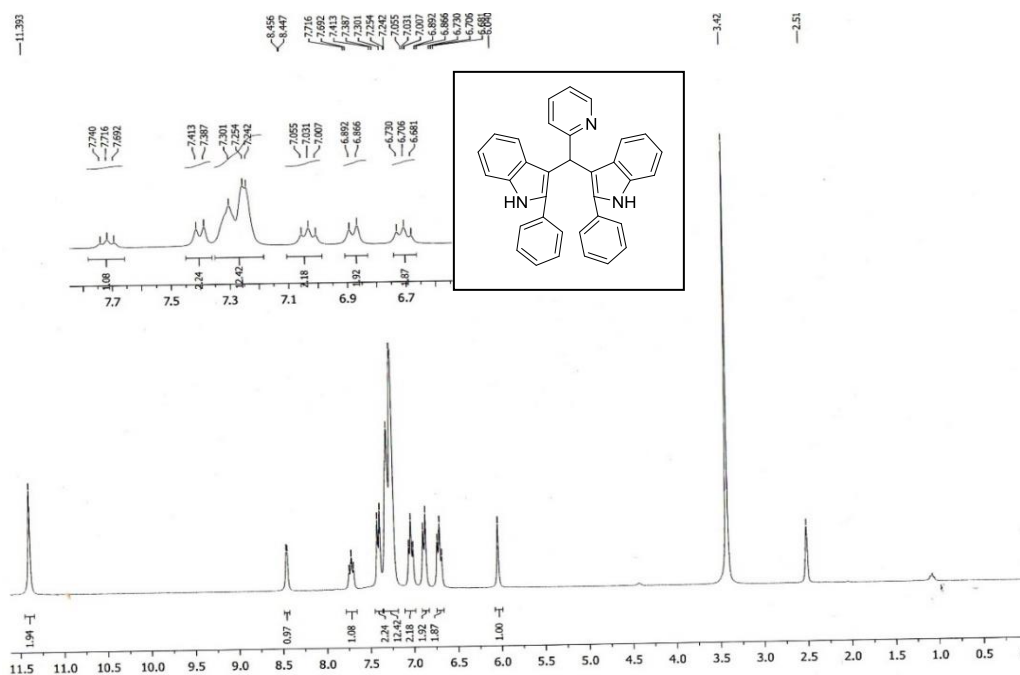
Tolerance:20.00(ppm), 5.00 .. 15.00(mmu)

Unsaturation Number:0.0 .. 100.0 (Fraction:Both)

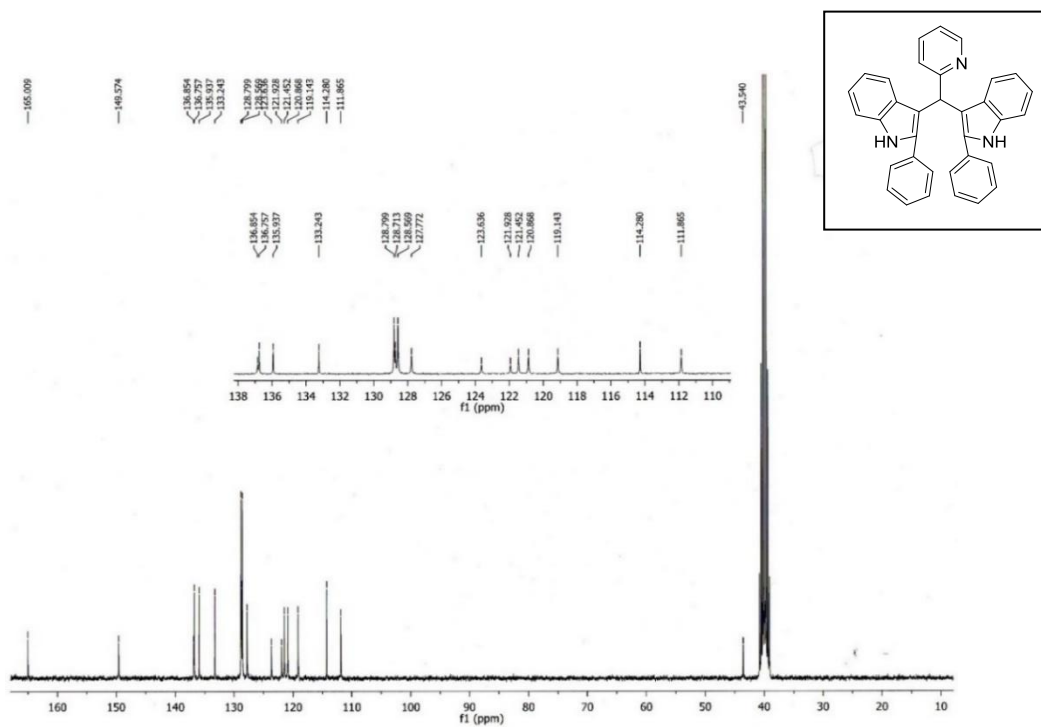


| Mass | Intensity | Calc. Mass | Mass Difference (mmu) | Mass Difference (ppm) | Possible Formula | Unsaturation Number |
|-----------|-----------|------------|-----------------------|-----------------------|---|---------------------|
| 476.21173 | 95790.96 | 476.21267 | -0.94 | -1.98 | ¹² C ₃₄ ¹ H ₂₆ ¹⁴ N ₃ | 23.5 |

HRMS-DART 3,3'-(pyridin-2-yl)methylenebis(2-phenyl-1H-indole) (18)



¹H NMR (300 MHz, DMSO-*d*₆) 3,3'-(pyridin-2-yl)methylenebis(2-phenyl-1*H*-indole) (18)



¹³C NMR (75 MHz, DMSO-*d*₆) 3,3'-(pyridin-2-yl)methylenebis(2-phenyl-1*H*-indole) (18)