REFERENCES

Abdel-Megid, M. (2020). Part–I: Utilities of active methylene compounds and heterocycles bearing active methyl or having an active methine in the formation of bioactive heteroarylpyrimidines and pyrimidopyrimidines. *Synthetic Communications*, *51*, 191–214. https://doi.org/10.1080/00397911.2020.1824278

Alkhateeb, F. L., Hayward, T. C., & Thurbide, K. B. (2015). A novel ultrashort capillary gas chromatography method using on-column injection and detection. *Canadian Journal of Chemistry*, *94*, 259–264. https://doi.org/10.1139/cjc-2015-0068

Andreou, D., Kallitsakis, M. G., Loukopoulos, E., Gabriel, C., Kostakis, G. E., & Lykakis, I. N. (2018). Copper-Promoted Regioselective Synthesis of Polysubstituted Pyrroles from Aldehydes, Amines, and Nitroalkenes via 1,2-Phenyl/Alkyl Migration. *The Journal of Organic Chemistry*, *83*(4), 2104–2113. https://doi.org/10.1021/acs.joc.7b03051

Asahi Research Center Co., Ltd. (1987). *Handbook of Proton-Nmr Spectra and Data*. Elsevier BV. https://doi.org/10.1016/c2013-0-10311-x

Barbier, V., Couty, F., & David, O. R. P. (2015). Morita-Baylis-Hillman Reactions with Nitroalkenes: A Case Study. *European Journal of Organic Chemistry*, *2015*, 3679–3688. https://doi.org/10.1002/ejoc.201500207

Berne, D., Caillol, S., Ladmiral, V., & Leclerc, E. (2022). Synthesis of polyester thermosets via internally catalyzed Michael-addition of methylene compounds on a 2-(trifluoromethyl)acrylate-derived building block. *European Polymer Journal*, *175*, 111362. https://doi.org/10.1016/j.eurpolymj.2022.111362

Bisel, P., Al-Momani, L., & Müller, M. (2008). The tert-butyl group in chemistry and biology. *Organic & Biomolecular Chemistry*, *6*(15), 2655. https://doi.org/10.1039/b800083b

Chakravarti, B., Mallik, B., & Chakravarti, D. N. (2016). Column Chromatography. *Current Protocols Essential Laboratory Techniques*, *13*, 6.2.1-6.2.15. https://doi.org/10.1002/cpet.6

Chen, W.-J., & Yuan, G.-Q. (2022a). Electrochemical synthesis of 1,2,3-trisubstituted pyrroles from β-dicarbonyl compounds, aldehydes and amines via radical addition reaction. *Tetrahedron Letters*, *90*, 153615. https://doi.org/10.1016/j.tetlet.2021.153615

Chen, W.-J., & Yuan, G.-Q. (2022b). Electrochemical synthesis of 1,2,3-trisubstituted pyrroles from β-dicarbonyl compounds, aldehydes and amines via radical addition reaction. *Tetrahedron Letters*, *90*, 153615. https://doi.org/10.1016/j.tetlet.2021.153615

Dziezak, J. D. (2015). Acids: Properties and Determination. *Encyclopaedia of Food and Health*, *1*. https://doi.org/10.1016/b978-0-12-384947-2.00003-9

Ebenezer, O., Jordaan, M. A., Carena, G., Bono, T., Shapi, M., & Tuszynski, J. A. (2022). An Overview of the Biological Evaluation of Selected Nitrogen-Containing Heterocycle Medicinal Chemistry Compounds. In *International Journal of Molecular Sciences* (Vol. 23, Issue 15). MDPI. https://doi.org/10.3390/ijms23158117

Grela, K., Shafi, S., & Kędziorek, M. (2010). Cross Metathesis of N-Allylamines and α,β-Unsaturated Carbonyl Compounds: A One-Pot Synthesis of Substituted Pyrroles. *Synlett*, *2011*, 124–128. https://doi.org/10.1055/s-0030-1259083

Grimme, S., & Schreiner, P. R. (2011). Steric Crowding Can Stabilize a Labile Molecule: Solving the Hexaphenylethane Riddle. *Angewandte Chemie International Edition*, *50*(52), 12639–12642. https://doi.org/10.1002/anie.201103615

Gunawan, R., & Nandiyanto, A. B. D. (2021). How to Read and Interpret 1H-NMR and 13C-NMR Spectrums. *Indonesian Journal of Science and Technology*, *6*, 267–298. https://doi.org/10.17509/ijost.v6i2.34189

Huang, C., Peng, Y., Lin, E., Ni, Z., Lin, X., Zhan, H., Huang, Y., & Chen, Z. (2022). Adaptable Singlet-Filtered Nuclear Magnetic Resonance Spectroscopy for Chemical and Biological Applications. *Analytical Chemistry*, *94*, 4201–4208. https://doi.org/10.1021/acs.analchem.1c04210

Ivanov, A. V., Shcherbakova, V. S., Mikhaleva, A. I., & Trofimov, B. A. (2014). One-pot synthesis of pyrroles from ketones, hydroxylamine, and 1,2-dibromoethane in the system KOH-DMSO. *Russian Journal of Organic Chemistry*, *50*(12), 1775–1778. https://doi.org/10.1134/S1070428014120100

Kabir, E., & Uzzaman, M. (2022). A review on biological and medicinal impact of heterocyclic compounds. In *Results in Chemistry* (Vol. 4). Elsevier B.V. https://doi.org/10.1016/j.rechem.2022.100606

Kanbara, Y., Abe, T., Fushimi, N., & Ikeno, T. (2012). Base-Catalyzed Direct Transformation of Benzylamines into Benzyl Alcohols. *Synlett*, *23*(05), 706–710. https://doi.org/10.1055/s-0031-1290595

Keglevich, G. (2025). Current Organic Chemistry. *Current Organic Chemistry*, *29*. https://doi.org/10.2174/coc-13852728-596

Khashi, M., Davoodnia, A., & Chamani, J. (2014). DMAP-Catalyzed Synthesis of Novel Pyrrolo[2,3-D]Pyrimidine Derivatives Bearing an Aromatic Sulfonamide Moiety. *Phosphorus, Sulfur, and Silicon and the Related Elements*, *189*, 839–848. https://doi.org/10.1080/10426507.2013.858253

Kong, Y., Wumaier, K., Liu, Y., Jiang, C., Wang, S., Liu, L., Chang, W., & Li, J. (2017). $Cu(OAc)_2$/TEMPO Cooperative Promoted Hydroamination Cyclization and Oxidative Dehydrogenation Cascade Reaction of Homopropargylic Amines. *Chemistry - An Asian Journal*, *13*, 46–54. https://doi.org/10.1002/asia.201701386

Kotha, S., & Singh, D. (2023). Synthesis of pyrrole derivatives via ring closing metathesis, Clauson-Kaas reaction and Paal-Knorr condensation as key steps.

Journal of Molecular Structure, *1275*. https://doi.org/10.1016/j.molstruc.2022.134600

Kravchenko, D. V, Kysil, V. M., Tkachenko, S. E., Maliarchouk, S., Okun, I. M., & Ivachtchenko, A. V. (2005). Synthesis and caspase-3 inhibitory activity of 8-sulfonyl-1,3-dioxo-2,3-dihydro-1H-pyrrolo[3,4-c]quinolines. *Il Farmaco*, *60*, 804–809. https://doi.org/10.1016/j.farmac.2005.08.001

Leonardi, G., Truscello, A., Righetti, I. C., Mondrone, G. G., Mascheroni, L., Citterio, A., & Sebastiano, R. (2022). Sustainable Synthesis of *N*-Alkyl-Pyrrolecarboxylic and Pyrrolepyrazinones Derivatives from Biosourced 3-Hydroxy-2-pyrones and Amines. *ACS Sustainable Chemistry & Engineering*, *10*, 12763–12770. https://doi.org/10.1021/acssuschemeng.2c03661

Liebeke, M., Hao, J., Ebbels, T. M. D., & Bundy, J. G. (2013). Combining Spectral Ordering with Peak Fitting for One-Dimensional NMR Quantitative Metabolomics. *Analytical Chemistry*, *85*, 4605–4612. https://doi.org/10.1021/ac400237w

Lonzi, G., & Alfonso, L. (2013). *Regioselective Synthesis of Functionalized Pyrroles*via*Gold(I)-Catalyzed [3+2] Cycloaddition of Stabilized Vinyl Diazo Derivatives and Nitriles*. *355*, 1948–1954. https://doi.org/10.1002/adsc.201300346

Ma, J., Li, F., Xie, H., Wang, C., Shi, W., Wang, L., Chen, P., & Wang, Z. (2025). Enzymatic and convenient synthesis of polyhydroxyalkyl pyrroles from unprotected sugars, benzoylacetonitriles, and NH_4OAc/Benzylamines in water. *Molecular Catalysis*, *572*, 114725. https://doi.org/10.1016/j.mcat.2024.114725

Ma, X., & Zhang, W. (2022). Recent developments in one-pot stepwise synthesis (OPSS) of small molecules. iScience, *25(9)*, 105005-105005. https://doi.org/10.1016/j.isci.2022.105005

Macnaughtan, M. A., Hou, T., Xu, J., & Raftery, D. (2003). High-Throughput Nuclear Magnetic Resonance Analysis Using a Multiple Coil Flow Probe. *Analytical Chemistry*, *75*, 5116–5123. https://doi.org/10.1021/ac034400r

Mahanta, S. P., & Panda, P. K. (2013). Condensation of cyclohexanediones with pyrrole under acidic conditions: unusual products and interesting structural features. *RSC Adv.*, *3*, 6614–6620. https://doi.org/10.1039/c3ra40208h

Majumdar, K., Basu, P., & Gonzalez, A. (2009). Formation of Five- and Six-Membered Heterocyclic Rings Under Radical Cyclisation Conditions. *Current Organic Chemistry*, *13*, 599–645. https://doi.org/10.2174/138527209787847381

Mandai, H., Yasuhara, H., Fujii, K., Shimomura, Y., Mitsudo, K., & Suga, S. (2017). Desymmetrization of *meso*-1,2-Diols by a Chiral *N*,*N*-4-Dimethylaminopyridine Derivative Containing a 1,1′-Binaphthyl Unit: Importance of the Hydroxy Groups. *The Journal of Organic Chemistry*, *82*, 6846–6856. https://doi.org/10.1021/acs.joc.7b00992

Mengxin, X., Lambu, M. R., & Judeh, Z. M. A. (2022). Selective One-Pot Cascade Synthesis of N-Substituted Highly Functionalized Pyrroles from Unprotected

Sugars, Primary Amines, and Oxoacetonitriles. *Journal of Organic Chemistry*, *87*(18), 12115–12131. https://doi.org/10.1021/acs.joc.2c01270

Miller, C. J., Elias, G., Schmitt, N. C., & Rae, C. (2010). Identification of Explosives from Porous Materials: Applications Using Reverse Phase High Performance Liquid Chromatography and Gas Chromatography. *Sensing and Imaging: An International Journal*, *11*, 61–75. https://doi.org/10.1007/s11220-010-0051-0

Mustafa, Y. F. (2018). Synthesis, characterization and antibacterial activity of novel heterocycle, coumacine, and two of its derivatives. *Saudi Pharmaceutical Journal*, *26*(6), 870–875. https://doi.org/10.1016/j.jsps.2018.03.010

Quraishi, M. A., Chauhan, D. S., & Saji, V. S. (2021). Heterocyclic biomolecules as green corrosion inhibitors. *Journal of Molecular Liquids*, *341*, 117265. https://doi.org/10.1016/j.molliq.2021.117265

Rossini, A. J. (2018). Materials Characterization by Dynamic Nuclear Polarization-Enhanced Solid-State NMR Spectroscopy. *The Journal of Physical Chemistry Letters*, *9*, 5150–5159. https://doi.org/10.1021/acs.jpclett.8b01891

Shaabani, A., & Hooshmand, S. E., (2018). Malononitrile dimer as a privileged reactant in design and skeletal diverse synthesis of heterocyclic motifs. *Molecular Diversity, 22(1),* 207–224. https://doi.org/10.1007/s11030-017-9807-y

Sheetal, Kumar Singh, A., Thakur, S., Pani, B., & Singh, M. (2024). Heterocyclic compounds as corrosion inhibitors for iron alloys in various industrial processes: A review. In *Journal of Industrial and Engineering Chemistry* (Vol. 130, pp. 141–177). Korean Society of Industrial Engineering Chemistry. https://doi.org/10.1016/j.jiec.2023.10.005

Sommen, G. L., Comel, A., & Kirsch, G. (2005). An Easy Access to Variously Substituted Pyrroles Starting From Ketene Dithioacetals. *Synthetic Communications*, *35*(5), 693–699. https://doi.org/10.1081/SCC-200050365

Stas, S., Balandier, J.-Y., Lemaur, V., Fenwick, O., Tregnago, G., Quist, F., Cacialli, F., Cornil, J., & Geerts, Y. H. (2013). Straightforward access to diketopyrrolopyrrole (DPP) dimers. *Dyes and Pigments*, *97*, 198–208. https://doi.org/10.1016/j.dyepig.2012.12.005

Thorat, B. R., Nagre, D. T., Dhurandhar, P. P., Borase, P. K., Bavkar, S., Kasar, R. R., Narkar, R. D., Farooqui, M., & Mali, S. N. (2022). L-Proline Catalyzed Knoevenagel Condensation of Aldehydes with Active Methylene Compounds and Their Molecular Modeling Studies for Anti-SARS CoV-2 Potentials. *Current Enzyme Inhibition*, *18*, 145–159. https://doi.org/10.2174/1573408018666220516104525

Trofimov, B. A., Mikhaleva, A. I., Ivanov, A. V., Shcherbakova, V. S., & Ushakov, I. A. (2015). Expedient one-pot synthesis of pyrroles from ketones, hydroxylamine, and 1,2-dichloroethane. *Tetrahedron*, *71*(1), 124–128. https://doi.org/10.1016/j.tet.2014.11.031

Tugrak, M., Gul, H. I., Bandow, K., Sakagami, H., Gulcin, I., Ozkay, Y., & Supuran, C. T. (2019). Synthesis and biological evaluation of some new mono Mannich bases with piperazines as possible anticancer agents and carbonic anhydrase inhibitors. *Bioorganic Chemistry*, *90*. https://doi.org/10.1016/j.bioorg.2019.103095

Unaleroglu, C., Temelli, B., & Tasgin, D. I. (2014). Access to pyrrole-based heterocyclic compounds via addition of pyrrole to C=C and C=N bonds. *Pure and Applied Chemistry*, *86*, 925–932. https://doi.org/10.1515/pac-2013-1109

Vakili, M., Tayyari, S. F., Nekoei, A.-R., Miremad, H., Salemi, S., & Sammelson, R. E. (2010). Structure, intramolecular hydrogen bonding, and vibrational spectra of 2,2,6,6-tetramethyl-3,5-heptanedione. *Journal of Molecular Structure*, *970*, 160–170. https://doi.org/10.1016/j.molstruc.2010.02.072

Wang, Q., & Zhu, J. (2015). Other Heterocycles. *Stereoselective Multiple Bond-Forming Transformations in Organic Synthesis*, 87–114. https://doi.org/10.1002/9781119006220.ch4

Wu, C., Lou, M., Sun, M., Wang, H., Li, Z., Qiu, J., Wang, J., & Liu, Z. (2021). Selectively reductive amination of levulinic acid with aryl amines to N-substituted aryl pyrroles. *Green Energy & Environment*, *8*, 438–443. https://doi.org/10.1016/j.gee.2021.04.010

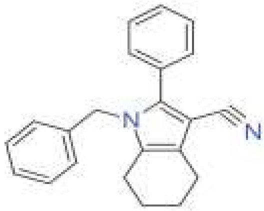
Xia, M., Lambu, M. R., Tatina, M. B., & Judeh, Z. M. A. (2021). A Practical Synthesis of Densely Functionalized Pyrroles via a Three-Component Cascade Reaction between Carbohydrates, Oxoacetonitriles, and Ammonium Acetate. *Journal of Organic Chemistry*, *86*(1), 837–849. https://doi.org/10.1021/acs.joc.0c02381

Zhang, M., Fang, X., Neumann, H., & Beller, M. (2013). General and Regioselective Synthesis of Pyrroles via Ruthenium-Catalyzed Multicomponent Reactions. *Journal of the American Chemical Society*, *135*(30), 11384–11388. https://doi.org/10.1021/ja406666r

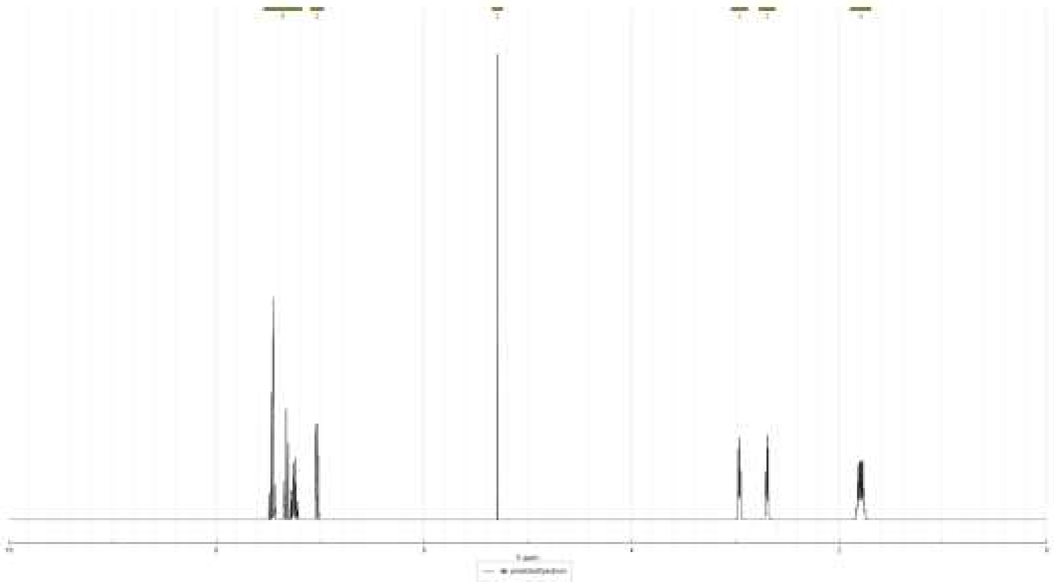
APPENDICES

A.1 Predicted ^{1}H NMR Spectra

A.1.1 2-Benzyl-4-cyano-6-phenyl-1,2,3,4-tetrahydroquinoline

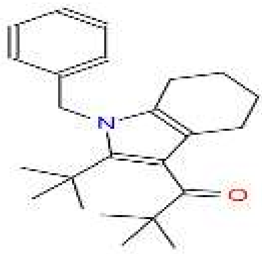


2-Benzyl-4-cyano-6-phenyl-1,2,3,4-tetrahydroquinoline

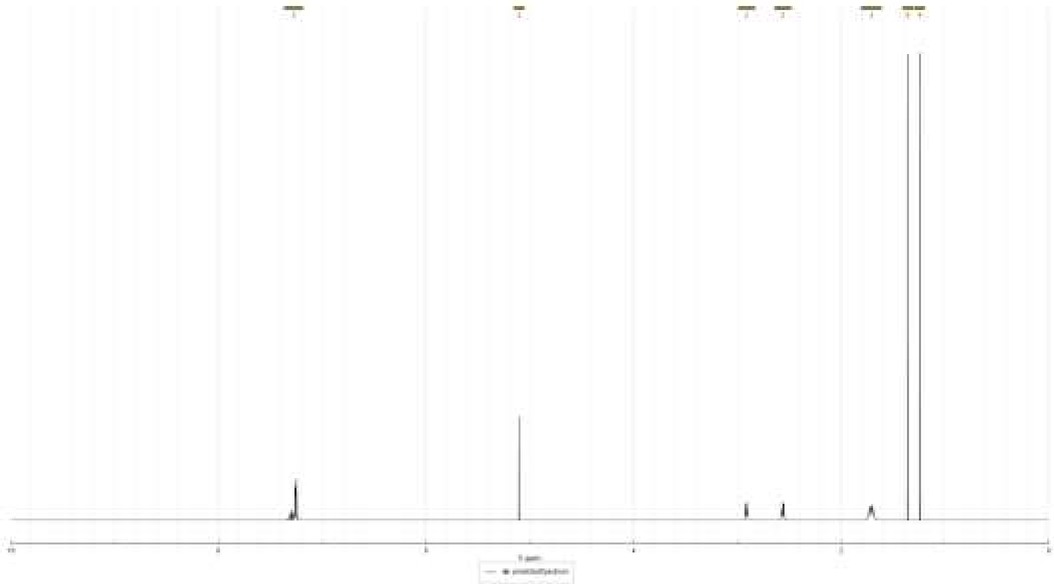


^{1}H NMR: δ 1.69-1.89 (4H, 1.77 (dtdd, *J* = 13.1, 7.0, 2.9, 1.9 Hz), 1.81 (dtdd, *J* = 13.7, 6.9, 2.9, 1.9 Hz)), 2.69 (2H, ddd, *J* = 13.3, 7.0, 2.9 Hz), 2.96 (2H, ddd, *J* = 14.2, 7.0, 2.9 Hz), 5.29 (2H, s), 7.03 (2H, dddd, *J* = 7.8, 1.5, 1.3, 0.6 Hz), 7.18-7.54 (8H, 7.24 (tt, *J* = 7.7, 1.5 Hz), 7.26 (tdd, *J* = 7.5, 1.9, 1.4 Hz), 7.33 (tdd, *J* = 7.7, 1.8, 0.6 Hz), 7.45 (dddd, *J* = 7.8, 1.7, 1.4, 0.5 Hz), 7.47 (dddd, *J* = 7.8, 7.5, 1.4, 0.5 Hz)).

A.1.2 2-(tert-Butyl)-3-(cyclopenta[b]indol-3-yl)-1-(benzyl)pyrrole-3-one

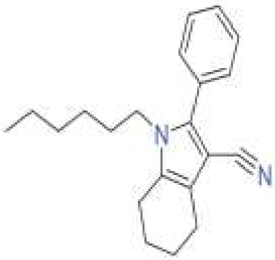


2-(tert-Butyl)-3-(cyclopenta[b]indol-3-yl)-1-(benzyl)pyrrole-3-one

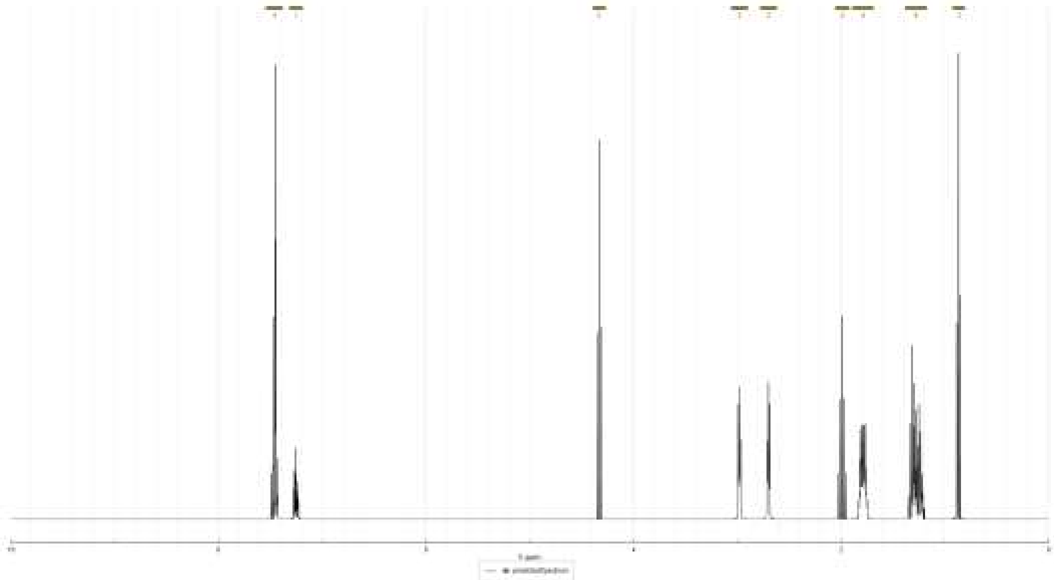


[1]H NMR: δ 1.24 (9H, s), 1.36 (9H, s), 1.61-1.81 (4H, 1.69 (dtdd, *J* = 13.7, 7.0, 2.9, 1.9 Hz), 1.73 (dtdd, *J* = 13.9, 6.9, 2.9, 1.9 Hz)), 2.56 (2H, ddd, *J* = 14.3, 7.0, 2.9 Hz), 2.91 (2H, ddd, *J* = 14.2, 7.0, 2.9 Hz), 5.10 (2H, s), 7.19-7.37 (5H, 7.25 (dddd, *J* = 7.8, 1.6, 1.3, 0.6 Hz), 7.26 (tdd, *J* = 7.7, 1.8, 0.6 Hz), 7.31 (tt, *J* = 7.7, 1.6 Hz)).

A.1.3 6-Hexyl-4-cyano-2,3,4,5-tetrahydrobenzo[h]quinoline

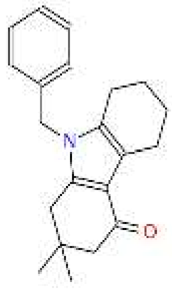


6-Hexyl-4-cyano-2,3,4,5-tetrahydrobenzo[h]quinoline

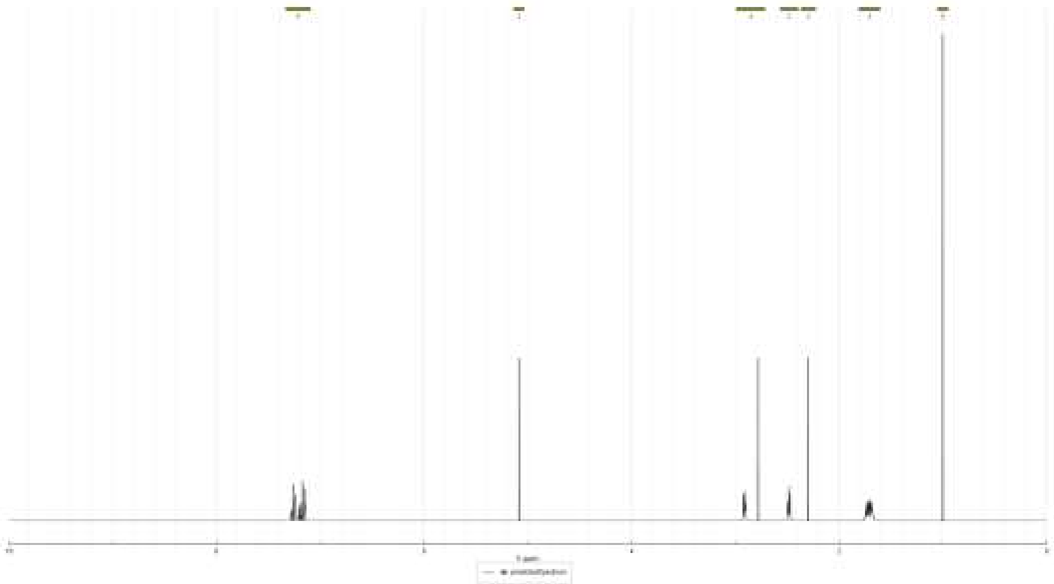


[1]H NMR: δ 0.87 (3H, t, *J* = 6.5 Hz), 1.18-1.38 (6H, 1.24 (quint, *J* = 6.5 Hz), 1.28 (h, *J* = 6.5 Hz), 1.31 (tt, *J* = 6.6, 6.5 Hz)), 1.69-1.89 (4H, 1.77 (dtdd, *J* = 13.1, 7.0, 2.9, 1.9 Hz), 1.81 (dtdd, *J* = 13.7, 6.9, 2.9, 1.9 Hz)), 1.99 (2H, tt, *J* = 7.4, 6.6 Hz), 2.70 (2H, ddd, *J* = 13.3, 7.0, 2.9 Hz), 2.98 (2H, ddd, *J* = 14.2, 7.0, 2.9 Hz), 4.33 (2H, t, *J* = 7.4 Hz), 7.25 (1H, tdd, *J* = 7.5, 1.9, 1.4 Hz), 7.38-7.54 (4H, 7.45 (dddd, *J* = 7.8, 1.7, 1.4, 0.5 Hz), 7.47 (dddd, *J* = 7.8, 7.5, 1.4, 0.5 Hz)).

A.1.4 1-(Benzyl)-2,3,4,9-tetrahydro-2-tert-butyl-3-oxo-1H-cyclopenta[b]indole



1-(Benzyl)-2,3,4,9-tetrahydro-2-tert-butyl-3-oxo-1H-cyclopenta[b]indole



[1]H NMR: δ 1.00 (6H, s), 1.61-1.81 (4H, 1.69 (dtdd, *J* = 13.7, 7.0, 2.9, 1.9 Hz), 1.72 (dtdd, *J* = 13.8, 6.9, 2.9, 1.9 Hz)), 2.31 (2H, d, *J* = 16.2 Hz), 2.48 (2H, ddd, *J* = 16.8, 7.0, 2.9 Hz), 2.71-2.99 (4H, 2.78 (d, *J* = 11.2 Hz), 2.91 (ddd, *J* = 14.2, 7.0, 2.9 Hz)), 5.08 (2H, s), 7.10-7.34 (5H, 7.16 (dddd, *J* = 7.9, 1.6, 1.3, 0.6 Hz), 7.19 (tt, *J* = 7.7, 1.6 Hz), 7.26 (dddd, *J* = 7.9, 7.7, 1.9, 0.6 Hz)).

A.2 Reaction Data and Calculation

$$Theoretical\ yield = \frac{mass_{limiting\ reactant} \times purity_{limiting\ reactant}}{MW_{limiting\ reactant}} \times MW_{product}$$

Note: 1 mol of 2-hydroxycyclohexanone dimer = 2 mol equivalent of 2-hydroxycyclohexanone

1. **Initial Reaction:**

2-hydroxycyclohexanone dimer	:	0.1176 g (0.51515 mmol)

3-oxo-3-phenylpropanenitrile	:	0.1511 g (1.04092 mmol)
Benzylamine	:	0.1197 g (purity unclear)
Triethylamine	:	0.0554 g (1.11713 mmol)
Theoretical yield	:	0.3260 g
Yield	**:**	**Incalculable**

$$\frac{0.1176\ g \times 97\%}{228.28\ g/mol} \times 2\ mol\ equiv. \times \frac{316.44g}{mol} = 0.3260\ g$$

2. **Reaction 2,2,6,6-Tetramehyl-3,5-heptanedione and $ZnCl_2$:**

2-hydroxycyclohexanone dimer	:	0.2358 g (1.02261 mmol)
2,2,6,6-tetramethyl-3,5-heptanedione	:	0.3735 g (1.94106 mmol)
Benzylamine	:	0.2383 g (purity unclear)
$ZnCl_2$	:	0.1450 g (1.04255 mmol)
Theoretical yield	:	0.6823 g
Yield	**:**	**0.07 g (10.25%)**

$$\frac{0.3735\ g \times 99\%}{136.3\ g/mol} \times \frac{351.52g}{mol} = 0.6823\ g$$

3. **Reaction 2,2,6,6-Tetramehyl-3,5-heptanedione and AcOH:**

2-hydroxycyclohexanone dimer	:	0.2354 g (1.020875 mmol)
2,2,6,6-tetramethyl-3,5-heptanedione	:	0.3978 g (2.11550 mmol)
Benzylamine	:	0.2197 g (purity unclear)
AcOH	:	0.1046 g (0.86223 mmol)
Theoretical yield	:	0.7177 g
Yield	**:**	**0.085 g (11.84%)**

$$\frac{0.2354\ g \times 97\%}{228.28\ g/mol} \times 2\ mol\ equiv. \times \frac{351.52g}{mol} = 0.7177\ g$$

4. **Reaction 3-oxo-3-phenylpropanenitrile and 1-hexylamine:**

2-hydroxycyclohexanone dimer	:	0.1177 g (0.50012 mmol)
3-oxo-3-phenylpropanenitrile	:	0.1481 g (0.99984 mmol)
1-hexylamine	:	0.1222 g (1.19555 mmol)
Triethylamine	:	0.1084 g (1.0605 mmol)
Theoretical yield	:	0.3064 g
Yield	**:**	**Incalculable**

$$\frac{0.1481\ g \times 99\%}{145.16\ g/mol} \times \frac{306.438g}{mol} = 0.3064\ g$$

5. **Reaction 5,5-dimethyl-1,3-cyclohexanedione and DMAP**

2-hydroxycyclohexanone dimer	:	0.1192 g (0.50650 mmol)
5,5-dimethyl-1,3-cyclohexanedione	:	0.1506 g (1.02061 mmol)
Benzylamine	:	0.2651 g (purity unclear)
4-dimethylaminopyridine (DMAP)	:	0.0623 g (0.50484 mmol)
Theoretical yield	:	0.3210 g

Yield	**:**	**0.1076 g (33.50%)**

$$\frac{0.1192\ g \times 97\%}{228.28\ g/mol} \times 2\ mol\ equiv. \times \frac{307.42g}{mol} = 0.3210\ g$$

6. Reaction 5,5-dimethyl-1,3-cyclohexanedione and AcOH

2-hydroxycyclohexanone dimer	:	0.1188 g (0.50480 mmol)
5,5-dimethyl-1,3-cyclohexanedione	:	0.1479 g (1.00231 mmol)
Benzylamine	:	0.2571 g (purity unclear)
AcOH	:	0.0716 g (0.59020 mmol)
Theoretical yield	:	0.3199 g
Yield	**:**	**0.1085 g (33.90%)**

$$\frac{0.1479\ g \times 95\%}{140.18\ g/mol} \times \frac{307.42g}{mol} = 0.3199\ g$$