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Dasari Harika Rani
Department of Chemistry,
Krishna University,
Machilipatnam,
Andhra Pradesh, India

Correspondence
Dasari Harika Rani
Department of Chemistry,
Krishna University,
Machilipatnam,
Andhra Pradesh, India

Preparation of intermediates in the natural products synthesis

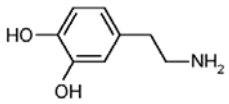
Dasari Harika Rani

Abstract
In this article we will try to review about Preparation of intermediates in the natural product synthesis.

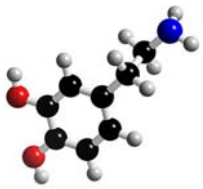
Keywords: Author guide, review article, camera-ready format, paper specifications, paper submission

Introduction

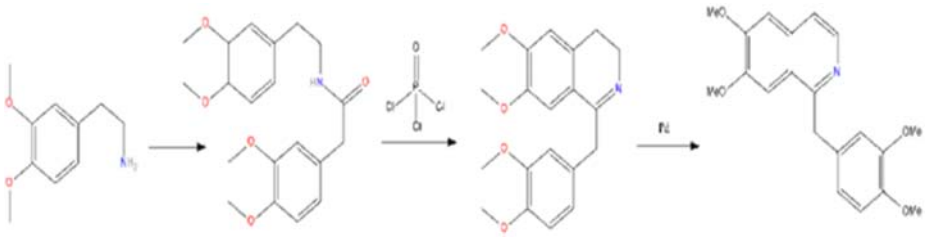
Dopamine neurotransmission plays as major role in etiology and /or therapy of a variety of neurological and psychiatric disorder, including Parkinson's disease, schizophrenia, Huntington's disease, and others. Thus, there are compelling reasons to understand the molecular pharmacology of dopamine receptors. Dopamine receptors are a class of metabotropic G protein-coupled receptors that are prominent in the vertebrate central nervous system (CNS). The neurotransmitter dopamine is the primary endogenous legend for dopamine receptors. Dopamine receptors re implicated in many neurological processes, including motivation, pleasure, cognition, memory, learning, and fine motor control, as well as modulation of neuroendocrine signaling. Dopamine receptor signaling and dopaminergic never function is implicated in several neuropsychiatric disorders. Thus, dopamine receptors are common neurologic drug targets; antipsychotics are often dopamine receptor antagonist while psycho stimulants are typically in direct agonists of dopamine receptor.



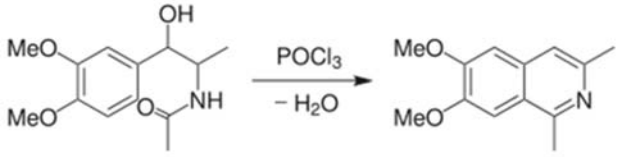
Dopamine Graphical Structure



In the Bischler-Napieralski reaction a β-phenylethylamine is acylated and cyclodehydration by a Lewis acid, such as phosphoryl chloride or phosphorus pentoxide. The resulting 1-substituted-3,4-dihydroisoquinoline can then be dehydrogenated using palladium. The following Bischler-Napieralski reaction produces papaverine.

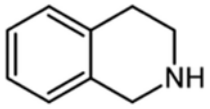


The Pictet-Gams synthesis and the Pictet-Spengler reaction are both variations on the Bischler-Napieralski reaction. The differences are as follows. The Pictet-Gams reaction avoids the final dehydrogenation step of the Bischler-Napieralski reaction by constructing a β-phenylethylamine with a hydroxy group in the side chain. This reaction results in a 1-alkyl-isoquinoline

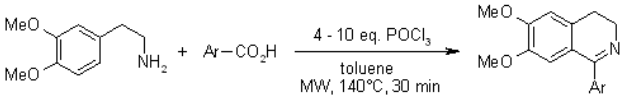


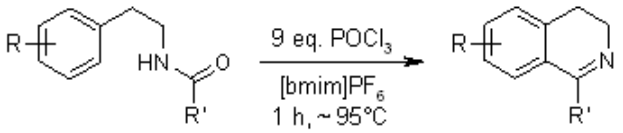
The Pictet-Spengler reaction combines a β-phenylethylamine and an aldehyde in an acid medium, which cyclizes the imine in a reaction of the Mannich type. This produces the tetrahydroisoquinoline instead of the dihydroisoquinoline. Intramolecularaza Wittig reactions also afford isoquinolines.

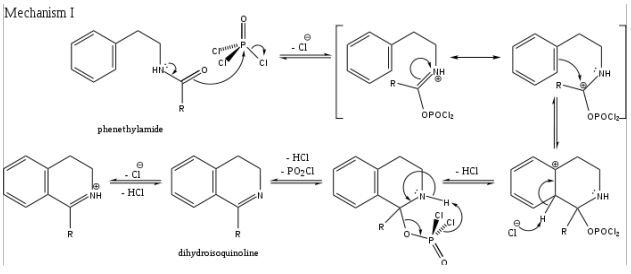
Tetrahydroisoquinoline

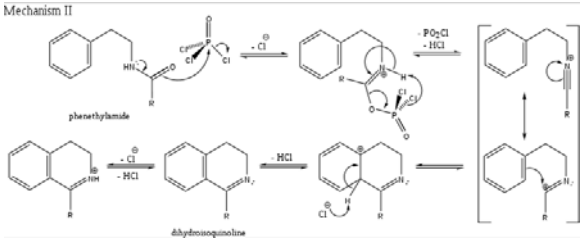


Molecular formula	$C_9H_{11}N$
Molar mass	133.19 g/mol
Appearance	Deep yellow liquid
Density	1.05 g/mL
Melting point	-30 °C
Boiling point	235-239 °C

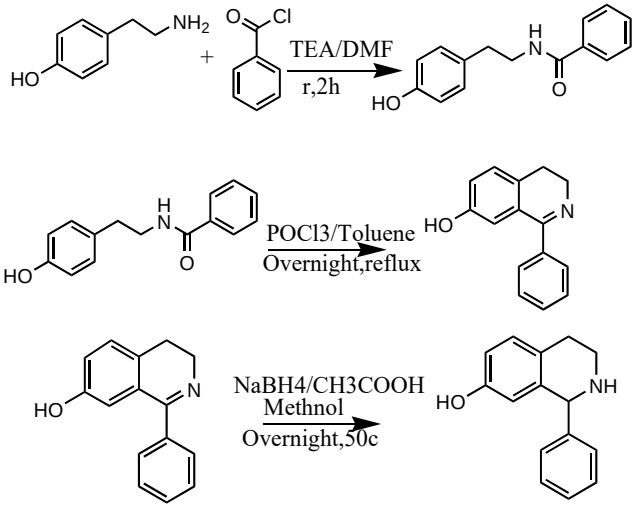






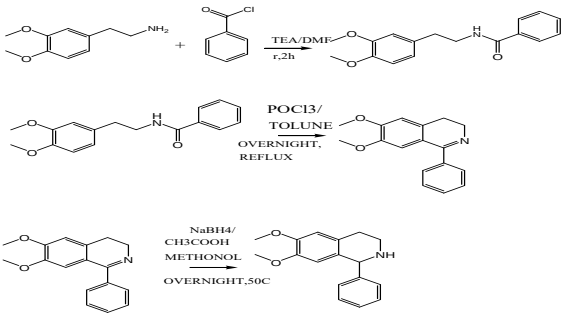


Experimental Scheme
Scheme: 1

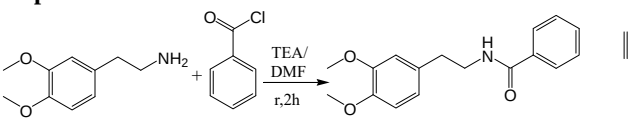


This synthesis was I would prepared only first step was reaction formed remained steps were not reactions formed so, for other moiety I would try Next scheme.

scheme:-2



Synthesis of Isoquinolines
Step-1



C.F:$C_{10}H_{14}NO_2$
E.M:180.1

C.F:$C_{17}H_{19}NO_3$
E.M:285.14

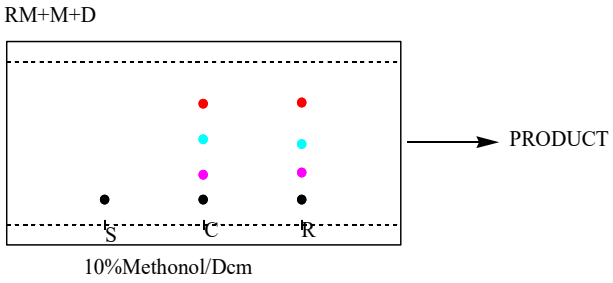
S. NO	Chemical Name	Quantity (g/ml)	Molecular Weight	Moles	Eq. Valance	Density (w/v)
1.	3,4 Dimethoxy phenyletyl amine	1.ooo	181.24	5.517	1.0	1.091
	Benzyl chloride	0.775 (0.64ml)	140.57	5.517	1.0	1.210
3.	TEA	1.116 (1.540ml)	101.19	11.034	2.0	0,725
4.	DMF	10ml				

Time: 2hours Temp: RAT

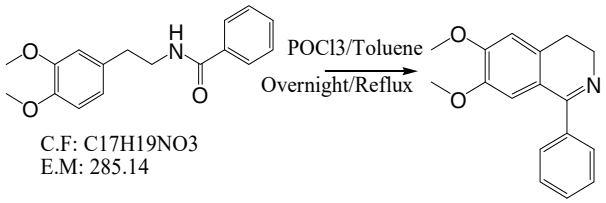
Procedure
To a single-neck round –bottom flask equipped with a magnetic stirrer was added. Then 3,4 dimethoxy phenyl ethyl amine is taken in DMF solution was added RB after then added to TEA(tri ethyl amine) then the resulting mixture added Benzyl choloride was added at 0c for 2hours reaction was monitored by T.L.C

Work Up
To the reaction mixture water was added. Extracted with Ethyl acetate 3times,washed with cooled water 2times, washed with brain (NaCl) solution and after that dried with Sodium Sulphate (Na2So4), and concentrated under reduced pressure to get compound-1(1.7gms) as light yellow solid was obtained.

Purification
This solid was used for next step. The residue was purified by coloumn chromotography using neutral alumina mesh silica gel by eluting with 10%Methonol in DCM.
1HNMR(400MHz,CDCL3)δ7.32-7.18(m,5H),6.80-6.58(m,5H),5.84-5.30(m,1H),LCMS:93.74% T.L.C



STEP:-2

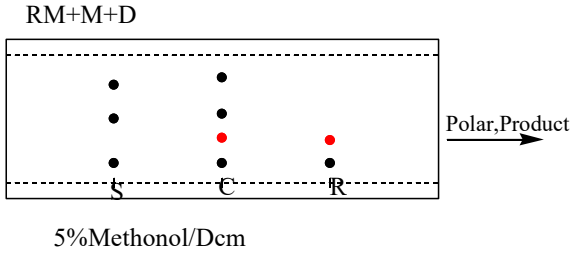


S. No	Chemical Name	Quantity (g/ml)	Molecular Weight	Moles	Eq. Valance	Density
1.	N-(3,4 dimethoxy phenylethyl) benzamide	0.300	285.33	1.051	1.0	
2.	PoCl3	0.6ml	153.33	1.051	1.0	1.645
3.	Toluene	15ml	92.14	1.051	1.0	0.866

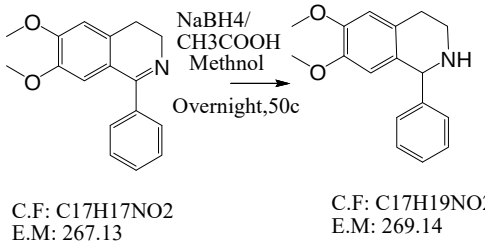
Procedure
To take single neck round bottom flask equipped with magnetic stirrer was added then 3,4 dimethoxy phenyl ethyl carboximide is taken in RB Toluene was added after that POCl3 was added to the reaction mixture was refluxed for overnight. The reaction progress was monitored by T.L.C

Workup
The reaction was completed (T.L.C), and then cooled to room temperacture. Solvent was evaporated and vaccumed. The reaction mixture was quenched with water and it is basified NaHCO3 solution, then extracted with ethyl acetate and combined organic layer was washed with brine solution dried over sodium sulphate, and concentrated under reduce pressure to get compound-2 as yellow colour solid. This solid was used directly for the next step. Reaction mass was poured in water and etyl acetate organic layer was separated and concentrated on rotavapour to get crude compound (280mg).

Purification
The residue was purified by coloumn chromotography using neutral alumina mesh silica gel by eluting with 5%Methonol in DCM (DichloromethaneCH2Cl2). Product weight (250mg, 89%) yellowcolorsolid.1HNMR(400MHz,CDCL3)δ:7.10-7.40(m,6H,ArH),6.29(s,1H,ArH),5.05(s,1H)M:(m/z267.32.,[M+H]+).
T.L.C



STEP-3



S. NO.	Chemical name	Quantity(g/ml)	Molecular weight	Moles	Eq. Valance	Density (w/v)
1.	3,4-dihydro-6,7dimethoxy-(phenylisoquinoline)	0.200	267.32	0.748	1.0	
2.	NaBH4	0.084	37.83	2.244	3.0	
3.	Acetic acid	0.076	60.05	1.279	1.71	1.05
4.	Methnol	4ml	32.00			

Time: Overnight Temp:- 50c

Procedure
To a three necked, round-bottom flask equipped with a magnetic stirrer was added a solution of 3,4-dihydro-6,7dimethoxy-(phenylisoquinolene) was added, in Methnol containg Acetic acid under Nitrogen condition. The solution was cooled to 0c and solid NaBH4 was added in portions. The solution was stirred 1h at room temperature, 50c for 4h,and then at room temperature overnight. The reaction progress was monitored by T.L.C.

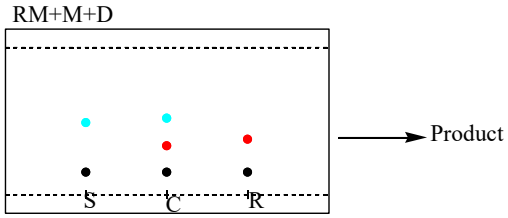
Workup
The reaction mixture was cooled at 0c. Then the reaction

mixture was quenched with water, and the mixture was concentrated in vacuo. The aqueous suspension was extracted with DCM and dried Sodium sulphate (Na2SO4), and the volaties was removed in vacuo toaffored the crude product (130mg) was obtained.

Purification

The residue was purified by preparative T.L.C (3%Methnol in DCM). 1H NMR (400 MHz, DMSO-d6) δ: 9.02(s,1H), 6.73(s,1H), 6.66(s,1H), 4.23(s,1H), 3.01-2.93(m,1H),2.86-2.80(m,1H),1.97-1.87(m,2H); LC-MS: (86.76%).

T.L.C



5%Methonol/Dcm

Advantages: Regulation of dopamine plays a crucial role in our mental and physical health. Neurons containing the neurotransmitter dopamine are clustered in the midbrain in an area called the substantia nigra. In Parkinson's disease, the dopamine- transmitting neurons in this area die. As a result, the brains of people with Parkinson's disease contain almost no dopamine. To help relieve their symptoms, we give these people L-DOPA, a drug that can be converted in the brain to dopamine.

Disadvantages: Dopamine antagonists are associated with many side effects, some severe, particularly when patients use them for long periods of time. Except in the case of psychotic disorders, these drugs are typically only used on a short-term basis, according to Pharmacorama.com. Dopamine antagonists can cause sedation and drowsiness, confusion, passivity, constipation and weight gain. If taken for a long time, they can lead to a condition called tardive dyskinesia, which involves unintentional facial and muscle movements. The drugs can also cause pseudo-Parkinsonism, in which the patient is unable to stay motionless. In addition, long-term use of these medications is linked to severe cardiovascular issues.

Conclusion

Therefore it is a very important point for the open access journals to encourage researchers and clinicians to work hard in order to clarify the main active interesting of preparation of Natural product synthesis. This is useful drug of parkinsons disease. But over doasage some other side effects are include. So, take care of thease drugs.

Acknowledgment

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References

1. Our Georgia History - TLC. OurGeorgiaHistory.com. http://ourgeorgiahistory.com/ogh/TLC. Retrieved. 2009.
2. [a] [b] Vena, Jocelyn; Elias, Matt TLC Ready To 'Change People's Lives' With New Music". mtv.com. 2009. http://www.mtv.com/news/articles/1624199/20091019/tlc.jhtml. Retrieved 2009-11-14.
3. Billboard Greatest Trios of All Time. Billboard. Archived from the original on. 2008. http://web.archive.org/web/20080430084126/http://www.billboard.com/bbcom/greatesttrios/2006/tlc.jsp. Retrieved 2008-05-13.
4. No Scrubs Song Information. billboard.com. http://www.billboard.com/#/song/tlc/no-scrubs/164 · ^ Unpretty Song Information. billboard.com. http://www.billboard.com/#/song/tlc/unpretty/1641897. Retrieved 15 October 2010.1893. Retrieved. 2010.
5. [a] [b] TLC Grammy Award Wins. grammy.com. http://www.grammy.com/GRAMMY_Awards/Winners/Results.aspx?title=&winner=TLC&year=0&genreID=0&hp=1. Retrieved. 2009.
6. Error: no |title= specified when using {{Cite web}}. TLC 20 Year Celebration. Billboard.com. http://tlc20.blogspot.com/2011/02/chilli-on-tlc-party.html.
7. Tlc - Tlc Plan Japan Reunion Tour. Contactmusic.com. 2009. http://www.contactmusic.com/news.nsf/story/tlc-plan-japan-reunion-tour_1098471. Retrieved. 2010.
8. TLC's T-Boz and Chilli Reuniting at Justin Timberlake and Friends Concert. American Superstar Magazine. 2009. http://www.americansuperstarmag.com/news/tlcs-t-boz-and-chilli-reuniting-at-justin-timberlake-and-friends-concert. Retrieved 2009-08-25.
9. TLC Plan Japan Reunion Tour. express.co.uk. 2009-03-23. http://www.express.co.uk/posts/view/90681. Retrieved 2009-05-11.
10. Goodson, Dave. Proven Hotness. bet.com. http://www.bet.com/Specials/BETAwards08/beta_ontv_showrecap.htm. Retrieved 2009-05-11.
11. O'SO KRISPIE IS CHOSEN AS THE GIRL IN R U THE GIRL WITH T-BOZ & CHILLI. thefutoncritic.com. 2005. http://www.thefutoncritic.com/news.aspx?id=20050922upn03. Retrieved 2009-05-10.
12. Reid, Shaheem TLC Say Goodbye, Beleaguered Ja Rule Basks In Limelight At Zootopia Show. mtv.com. 2003. http://www.mtv.com/news/articles/1472227/20030602/tlc.jhtml. Retrieved 2009-05-11.
13. Sinclair, Tom (1999-11-26). Three To Tangle. ew.com. http://w · ^ 1998–4th Annual Soul Train Lady of Soul Awards. soultrain.com. http://www.soultrain.com/stlos/library.html. Retrieved 2009-05-11.ww.ew.com/ew/article/0,,271844,00.html. Retrieved. 2009.
14. Henriques, Diana B. and Samuels, Anita M. (February 5, 1996). Does Going 'Broke' Mean Artist Really Doesn't Have Any Money?. New York Times. Archived from the original on. 2004. http://web.archive.org/web/20041010081842/http://mbhs.bergtraum.k12.ny.us/cybereng/nyt/rapper01.htm.
15. Jones, Solomon. Over the Waterfall. philadelphiaweekly.com. http://www.philadelphiaweekly.com/print_friendly.php?id=3970. Retrieved. 2008.
16. T-Boz: Singer. people.com. 2000-05-08. http://www.people.com/people/archive/article/0,,20131161,00.html. Retrieved. 2008.
17. [a] [b] Simmonds, Jeremy The Encyclopedia of Dead Rock Stars: Heroin, Handguns, and Ham Sandwiches. Chicago Review Press. 2008, 473. ISBN 1-556-52754-3.

18. The Billboard Hot 100 All-Time Top Artists. Billboard. Nielsen Business Media, Inc. http://www.billboard.com/bbcom/specials/hot100/charts/top100-artists-60.shtml. Retrieved 2008.
19. Laurence M Harwood, Christopher J Moody. Experimental organic chemistry: Principles and Practice (Illustrated ed.). 47-51. ISBN 9780632020171.
20. Craig LC, Gregory JD, Hausmann W. Versatile laboratory concentration device. Anal. Chem. 1950; 22:1462. doi:10.1021/ac60047a601.
21. The book gives an excellent overview of the wide range of the possibilities of TLC [thin-layer chromatography] techniques, reflec.
22. Emphasizing specific interactions between solutes and stationary/mobile phases, this important reference guide details various choices.
    Book: Practice of TLC by Touchstone
    Practice of Thin Layer Chromatography, 3rd Edition by Joseph C. Touchstone Hardcover [table of contents listed below]&nb. 1992, 400.
    Creep Song Information. billboard.com. http://www.billboard.com/#/song/tlc/creep/344687. Retrieved. 2010.
23. Lisa 'Left Eye' Lopes, Member of Grammy Award-Winning Trio TLC, Dies In Car Crash In Honduras. Jet (Johnson Publishing Company). 2002; 101(21):18. ISSN 0021-5996.
24. Billboard's Greatest Trios of All Time. billboard.com. http://www.riaa.com/goldandplatinumdata.php?resultpage=2&table=SEARCH_RESULTS&action=&title=&artist=TLC&format=&debutLP=&category=&sex=&releaseDate=&requestNo=&type=&level=&label=&company=&certificationDate=&awardDescription=&catalogNo=&aSex=&rec_id=&charField=&gold=&platinum=&multiPlat=&level2=&certDate=&album=&id=&after=&before=&startMonth=1&endMonth=1&startYear=1958&endYear=2009&sort=Artist&perPage=25. Retrieved. 2008.
25. Hess, Mickey. Icons Of Hip Hop: An Encyclopedia Of the Movement, Music, and Culture,. Greenwood Publishing Group. 2007; 1(1):517. ISBN 0-313-33903-1.