Karpagam Academy of Higher Education
Department of Chemistry

Name of the Faculty: Dr.M.R.Ezhilarasi
Class: I B.Sc Chemistry
Subject: Oxygen containing functional groups practical
Subject code: 19CHU213
Semester-II
Year 2019-20

B.Sc. Chemistry **2019-2020**

Semester-II

19CHU 213 **OXYGEN CONTAINING FUNCTIONAL GROUPS - PRACTICAL** **2H 1C**

Instruction Hours/week:L: 0 T:0 P:2 **Marks: Internal:40** **External: 60** **Total:100**
End Semester Exam: 3 hrs

Course Objectives
It enables the students
1. To test the organic functional groups like alcohols, phenols carbonyl and carboxylic acid groups
2. To carryout the preparations of organic compounds by acylation reactions
3. To carryout the preparations of organic compounds by benzyloation reactions.
4. To carryout the iodoform reactions and selective reductions.
5. To prepare semicarbazone derivatives of ketones
6. To prepare S-Benzylisothiouronium salt of aromatic acids.

Course Outcomes
The student know to
1. Identify the organic functional groups like alcohols, phenols carbonyl and carboxylic acid groups
2. Prepare organic compounds by acylation reactions

3. Prepare organic compounds by benzoylation reactions.
4. Carryout the iodoform reactions and selective reductions.
5. Prepare semicarbazone derivatives of ketones

1. Functional group tests for alcohols, phenols, carbonyl and carboxylic acid group.
2. Organic preparations:

i. Acetylation of one of the following compounds: amines (aniline, o-, m-, p- toluidinesand o-, m-, p-anisidine) and phenols (β -naphthol, vanillin, salicylic acid) by any onemethod:
   a. Using conventional method.
   b. Using green approach

ii. Benzolyation of one of the following amines (aniline, o-, m-, p- toluidines and o-, m-,p-anisidine) and one of the following phenols (β -naphthol, resorcinol, p- cresol)by Schotten-Baumann reaction.

iii. Oxidation of ethanol/ isopropanol (Iodoform reaction).
iv. Selective reduction of meta dinitrobenzene to m-nitroaniline.
v. Hydrolysis of amides and esters.
vi. Semicarbazone of any one of the following compounds: acetone, ethyl methyl ketone,cyclohexanone, benzaldehyde.
vii. S-Benzylisothiouronium salt of one each of water soluble and water insoluble acids(benzoic acid, oxalic acid, phenyl acetic acid and phthalic acid).
viii. Aldol condensation using either conventional or green method.

The above derivatives should be prepared using 0.5-1g of the organic compound. The solidsamples must be collected and may be used for recrystallization and melting point.

SuggestedReadings

1. Mann, F.G. & Saunders, B.C.(2009). *Practical Organic Chemistry*.Pearson Education.
2. Furniss, B.S., Hannaford, A.J., Smith, P.W.G. &Tatchell, A.R. (2012). *Practical Organic Chemistry*. 5th Ed., Pearson.
3. Veeraiyan V, Venkateswaran R, and Vaithiyalingam A.R. (2015). Basic Principles of Practical Chemistry, S. Chand & Sons Ltd.
4. Raj K. Bansal, (2012). Laboratory Manual of Organic Chemistry, New Age International Publishers (P) Ltd.
5. ThomasA.O. (2003). Practical Chemistry for B.Sc Main Students, Scientific Book Centre, Cannore-1, Kerala.
6. Ahluwalia, V.K. & Aggarwal, R. (2000). *Comprehensive Practical Organic Chemistry: Preparation and Quantitative Analysis*. University Press.
7. Ahluwalia, V.K. & Dhingra, S. (2000). *Comprehensive Practical Organic Chemistry: Qualitative Analysis*. University Press.

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List of Practicals

Exp.No	Name of the Experiment	Support Materials
1	Preparation of Acetanilide from aniline	R1-36
2	Preparation of Benzanilide from aniline	R1-51
3	Preparation of 2-naphthylbenzoate from 2-naphthol	R1-51
4	Hydrolysis of amides, Aldol condensation reactions	R2-415
5	Preparation of semicarbazone from aldehyde or ketone	R1-10
6	Analysis of organic compound -1	R1-2-14
7	Analysis of organic compound -2	
8	Analysis of organic compound -3	
9	Analysis of organic compound -4	
10	Model Practical Examination	

Support Materials:
R1: Organic lab manual by Ramanujam 2002,S.Chand and sons, New delhi.
R2: A.O. Thomas, 2003, Practical chemistry for B.Sc Main students. Scientific Book center, Cannore-1, Kerala.