



ORIGINAL RESEARCH PAPER

Chemistry

REVIEW OF ORGANIC MECHANISMS

KEY WORDS:

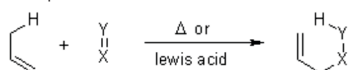
Dr. Shraddha Upadhyay

Head, Department of Applied Science, Chemistry, SITE, Swami Vivekanand Subharti University, Meerut, Uttar Pradesh 250005, India.

In chemical reaction chemical transformation of one set of chemical substances to another takes place. Classically, chemical reactions happens because of changes in the positions of electrons in the forming and breaking of chemical bonds between atoms, with no change to the nuclei and no change to the elements present.

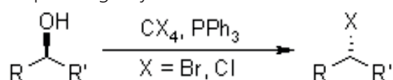
1. ALDER-ENE REACTIONS

This is pericyclic reaction in which the double bond of alkene π-bond and allylic C-H σ-bond shifts and new C-H and C-C σ-bonds thermally or in presence of Lewis acid.



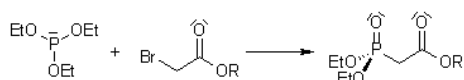
2. APPEL REACTION

The reaction of alcohols with triphenylphosphine and CCl₄, CBr₄ to the corresponding alkyl halide under mild conditions.



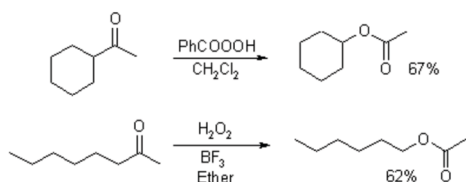
3. ARBUZOV REACTION

This reaction involves synthesis of alkyl phosphonate with the help of a trialkyl phosphite and alkyl halide



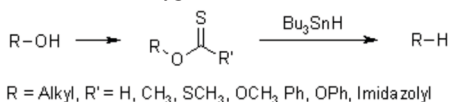
4. BAYER-VILLEGAR OXIDATION

C-C bond adjacent to carbonyl group cleaved by using peracids this is called as Baeyer-Villiger Oxidation. It can be known as oxidative cleavage of C-C bond. Product form by ketone is ester and cyclic ester.



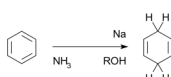
5. BARTON-McCOMBIE REACTION

A method is use for the deoxygenation of alcohols.



6. BIRCH REDUCTION

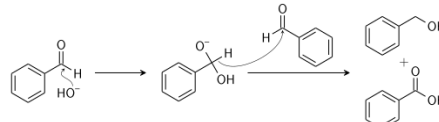
In Birch reduction unconjugated cyclohexadienes form 1,4-reduction of aromatic rings undergo a to provide. The reduction is optimized by sodium or lithium metal in liquid ammonia and in the presence of an alcohol.



7. CANNIZZARO REACTION

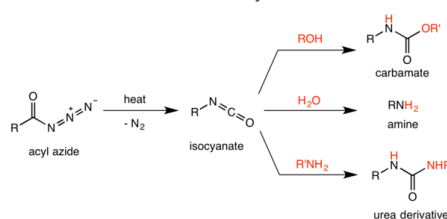
The Cannizzaro reaction, is a organic reaction that involves the

base-promoted disproportionate of a non-enolizable aldehyde.



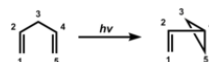
8. CURTIUS REARRANGEMENT

Curtius Rearrangement is the thermal decomposition of carboxylic azides. Product form is an isocyanate.



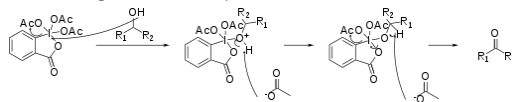
9. DI-PI METHANE REACTION

The di-pi-methane rearrangement is a photochemical reaction in which two π-systems separated by a saturated carbon atom to form a substituted cyclopropane. The rearrangement reaction is 1,2 shift of one ene group.



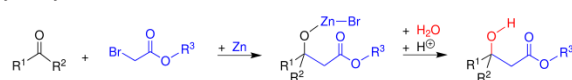
10. DESS MARTIN OXIDATION

The Dess–Martin oxidation is chemical reaction in which primary alcohols oxidized to aldehydes while secondary alcohols to ketones using Dess-Martin periodinane.



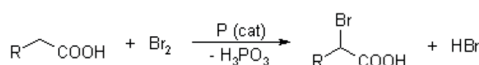
11. REFORMATSKI REACTION

The Reformatsky reaction involves condensation aldehydes or ketones, with α-halo esters, in presence of metallic zinc to form β-hydroxy-esters



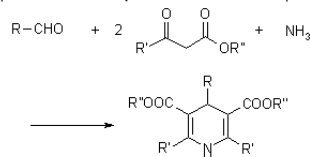
12. HELL-VOLHARDS-ZELINSKY

This reaction deals with the α-bromination of carboxylic acids by the use of bromine and phosphorus as catalyst



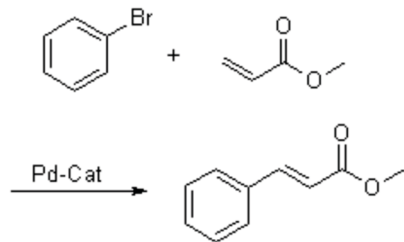
13. HANTZSCH SYNTHESIS

Hantzsch reaction is condensation of an aldehyde with two equivalents of a β-keto ester in the presence of ammonia.



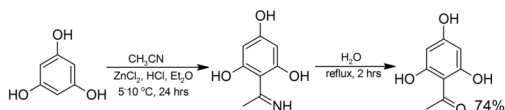
14. HECK REACTION

C-C coupling in between aryl halides or vinyl halides and activated alkenes in the presence of a base and palladium-catalyzed is referred as the Heck Reaction.



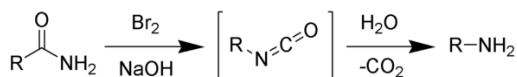
15. HOBEN-HOESCH SYNTHESIS

The Hoesch reaction or Houben–Hoesch reaction aryl ketone is form by reaction of nitrile with an arene compound



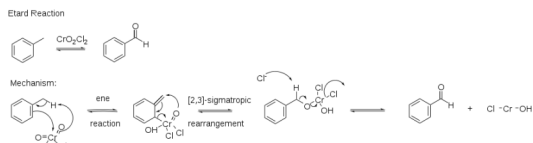
16. HOFFMAN-BROMIDE DEGRADATION REACTIONS

Hofmann rearrangement is the rearrangement of primary amide to a primary amine with one less carbon atom.



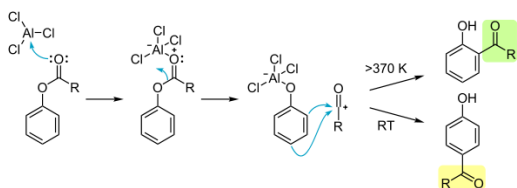
17. ETARD'S REACTION

The Étard reaction is a chemical reaction in which an aromatic or heterocyclic bound methyl group oxidized to an aldehyde using chromyl chloride.



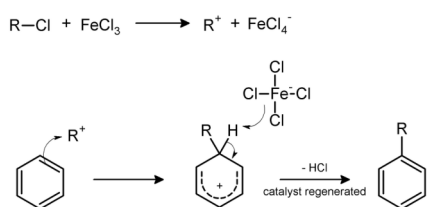
18. FRIES RERRANGMENT

The Fries rearrangement is a rearrangement reaction of a phenolic ester to a hydroxy aryl ketone using Lewis acids as catalyst.



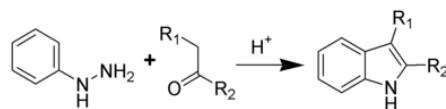
19. FRIDAL CRAFTS REACTION

In Friedel–Crafts reactions substituent attach to an aromatic ring. Friedel–Crafts reactions are of two main types: alkylation and acylation reactions. Both proceed by electrophilic aromatic substitution.



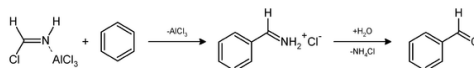
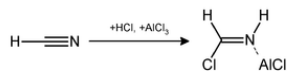
20. FISCHER INDOLE SYNTHESIS

The Fischer indole synthesis is synthesis of aromatic heterocycle indole by using phenylhydrazine and an aldehyde or ketone in acidic conditions.



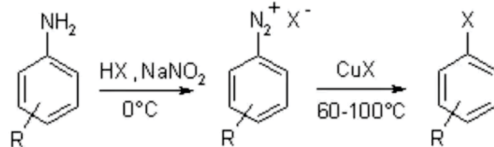
21. GATTERMAN-KOCH REACTIONS

Gattermann reaction by using HCN and HCl formulated the aromatic compounds in the presence of a Lewis acid catalyst such as AlCl₃.



22. GATTERMAN AND SANDMEYERS

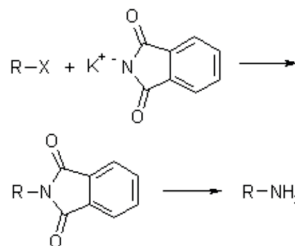
In this reaction is the aniline converted into diazonium salt.



X = CN, Br, Cl, SO₃H

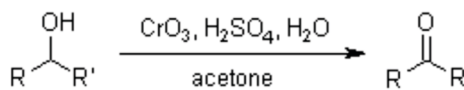
24. GABRIELS PHTHALAMIDE REACTION

This reaction allows the preparation of primary amines by reaction of potassium phthalimide with alkyl halides.



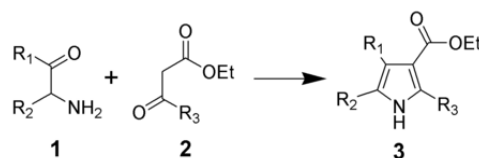
25. JONES OXIDATION

Jones Oxidation leads to conversion of secondary alcohols to ketones and of most primary alcohols to carboxylic acids.



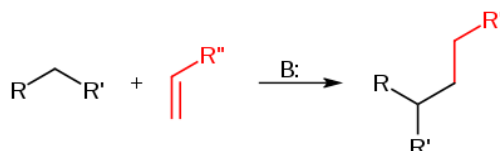
26. KNORR PYRROL SYNTHESIS

The Knorr pyrrole synthesis synthesizes substituted pyrroles by using of an α-amino-ketone and a compound containing an electron-withdrawing group α to a carbonyl group



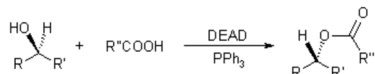
27. MICHAEL ADDITION

Michael addition reaction is the nucleophilic addition nucleophile to an α, β-unsaturated carbonyl compound.



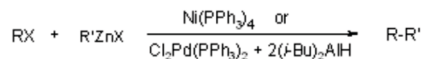
28. MITSUNOBU REACTION

This reaction leads to the conversion of primary and secondary alcohols to esters, phenyl ethers, thioethers and various other compounds.



29. NIGISHI CROSS-COUPLING REACTION

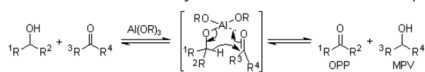
The Negishi Coupling, allowed the preparation of unsymmetrical biaryls



R = alkenyl, aryl, allyl, benzyl, propargyl
R' = alkenyl, aryl, alkynyl, alkyl, benzyl, allyl

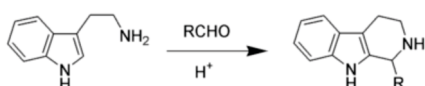
30. OPPENAUER OXIDATION

In Meerwein-Ponndorf-Verley-Reduction (MPV) or Oppenauer Oxidation (OPP) Aluminium-catalyzed hydride shift proceeds over a six-membered transition state, from the α -carbon of an alcohol component to the carbonyl carbon of a second component.



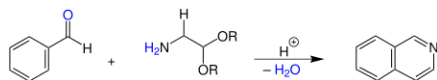
31. PICTATE-SPRINGER SYNTHESIS

Pictet-Spengler reaction is type of chemical reaction in which a β -arylethylamine condense with aldehyde or ketone followed by ring closure.



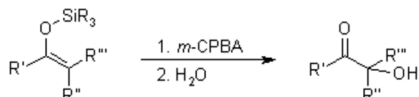
32. POMERANTZ-FRITSCH REACTION

The Pomeranz-Fritsch reaction, also named Pomeranz-Fritsch cyclization, is a name reaction in the organic chemistry. It is an acid-promoted reaction of from benzaldehyde and a 2, 2-dialkoxyethylamine for the synthesis of isoquinoline



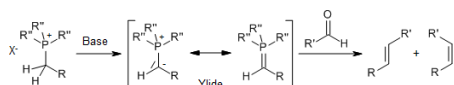
33. RUBOTUM REACTION

In this reaction synthesis of α -hydroxy ketones is occur by reaction of silyl enol ethers with mCPBA,



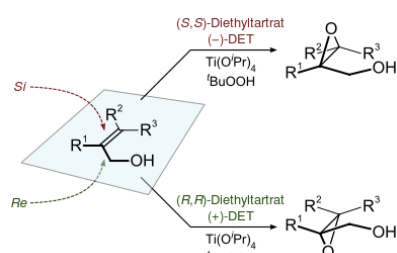
34. WITTIG REACTION

Wittig Reaction allows the reaction of an aldehyde or ketone with the ylide generated from a phosphonium salt for the preparation of an alkene.



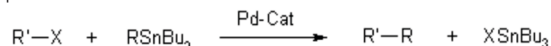
35. SHARPLESS ASYMMETRIC SYNTHESIS

The Sharpless epoxidation reaction is applied for synthesis of 2, 3-epoxyalcohols from primary and secondary allylic alcohols. It is an enantioselective chemical reaction



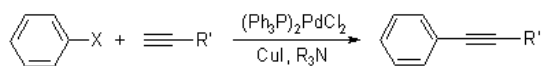
36. STILLE CROSS-COUPLING REACTION

This is C-C bond forming reaction between stannanes and halides or pseudo halides.



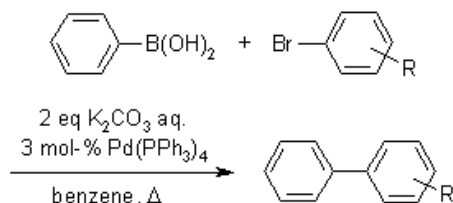
37. SONOGASHIRA REACTION

Terminal alkynes coupled with aryl or vinyl halides using palladium catalyst or a copper (I) co catalyst in presence of amine base.



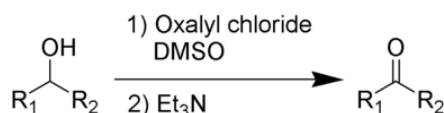
38. SUZUKI-MIYARA REACTION

Suzuki Coupling is the palladium-catalyzed cross coupling between organoboronic acid and halides.



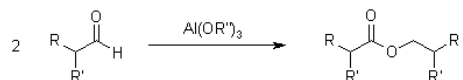
39. SWERN OXIDATION

In Swern oxidation, primary or secondary alcohol is oxidized to an aldehyde or ketone using oxalyl chloride, dimethyl sulfoxide (DMSO) and an organic base, such as triethylamine.



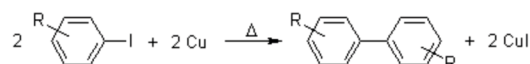
40. TISHCHENKO REACTION

Tishchenko Reaction allows the preparation of esters from two equivalents of an aldehyde via disproportionation reaction.



41. ULLMANN REACTION

Ullmann Reaction utilizes copper for the synthesis of symmetric biaryls via Nucleophilic Aromatic Substitution between various nucleophiles and aryl halides.



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