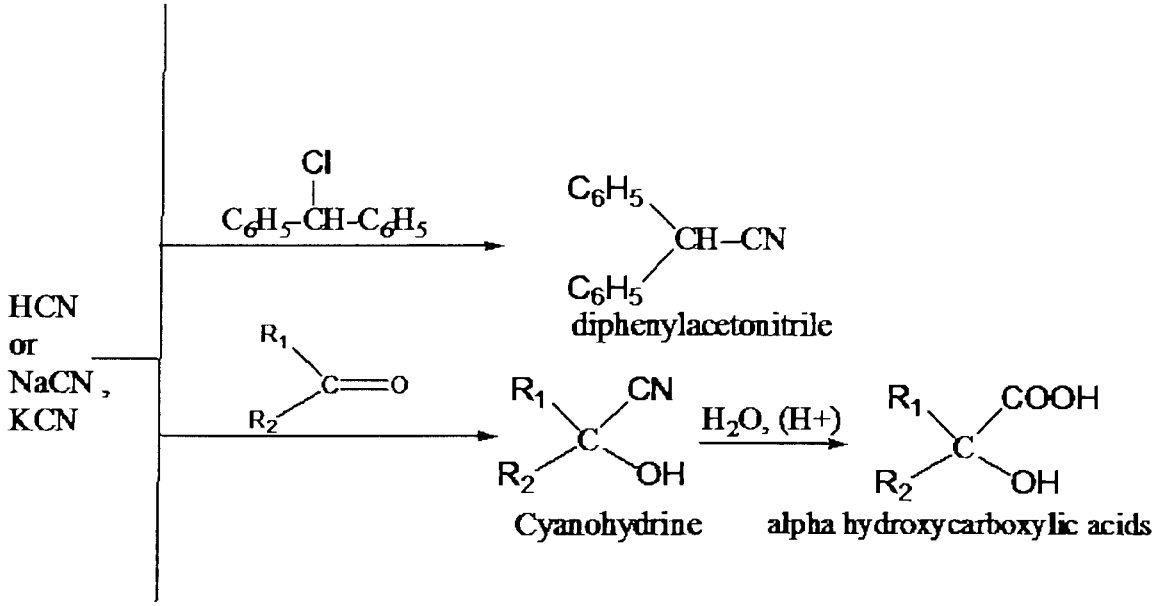
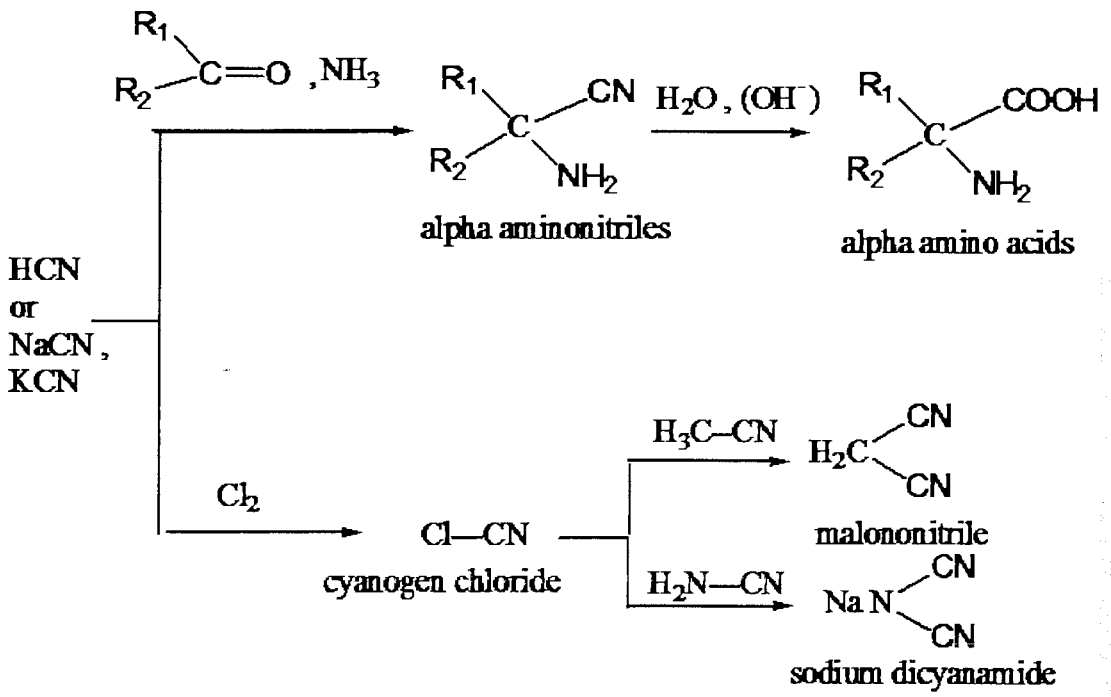
Intermediates derived from hydrogen cyanide



continue- Fig.-2-Intermediates derived from hydrogen cyanide

Intermediates derived from hydrogen cyanide



continue Fig.-2-Intermediates derived from hydrogen cyanide

Fig. 3 Intermediates derived from Ethylene Oxide

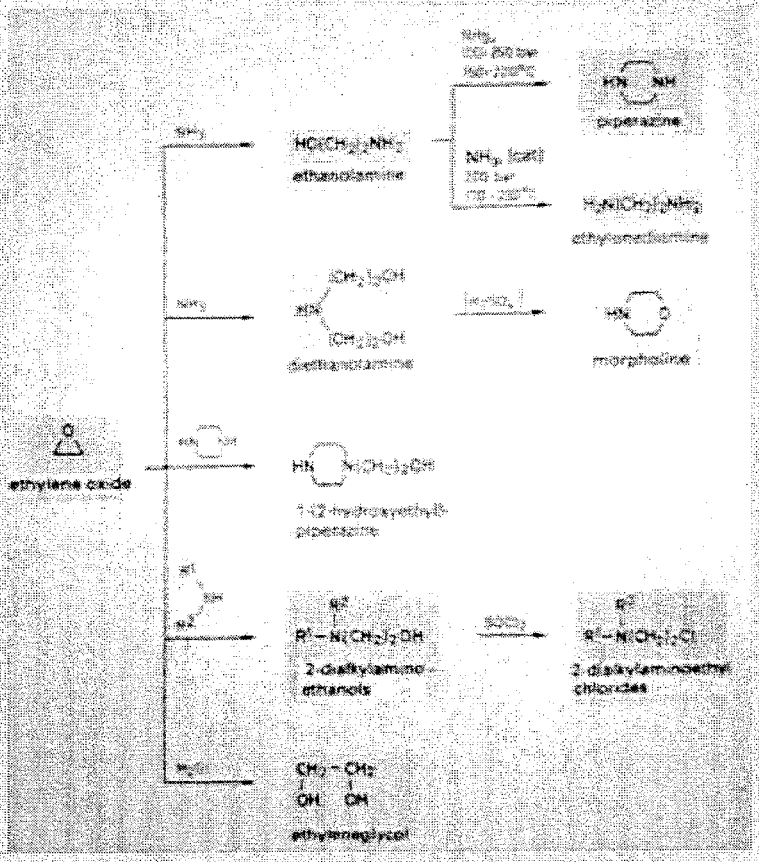
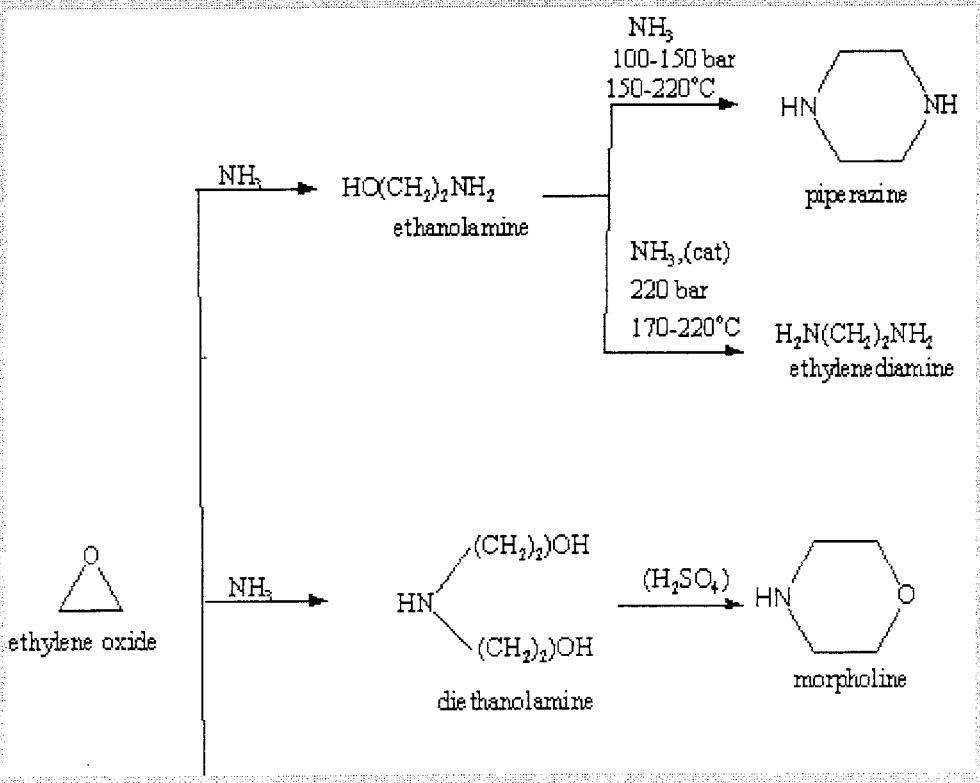


Fig. 3 Intermediates derived from Ethylene Oxide



Cont. Fig. 3 Intermediates derived from Ethylene Oxide

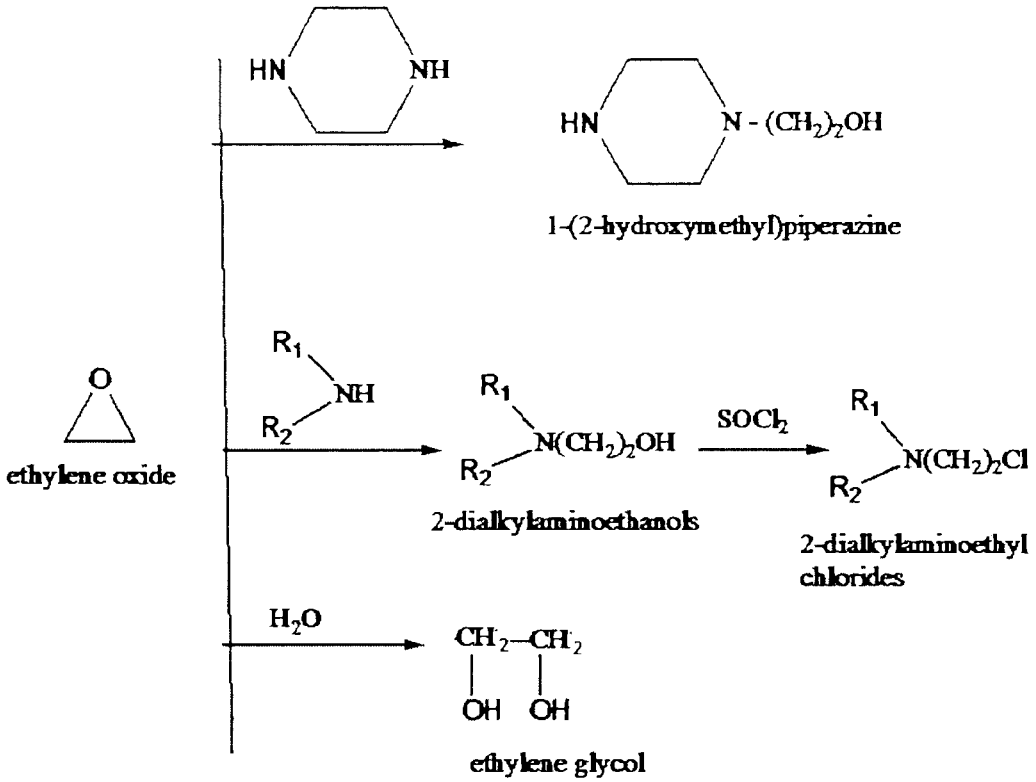


Fig- 4 Intermediates derived from Toluene

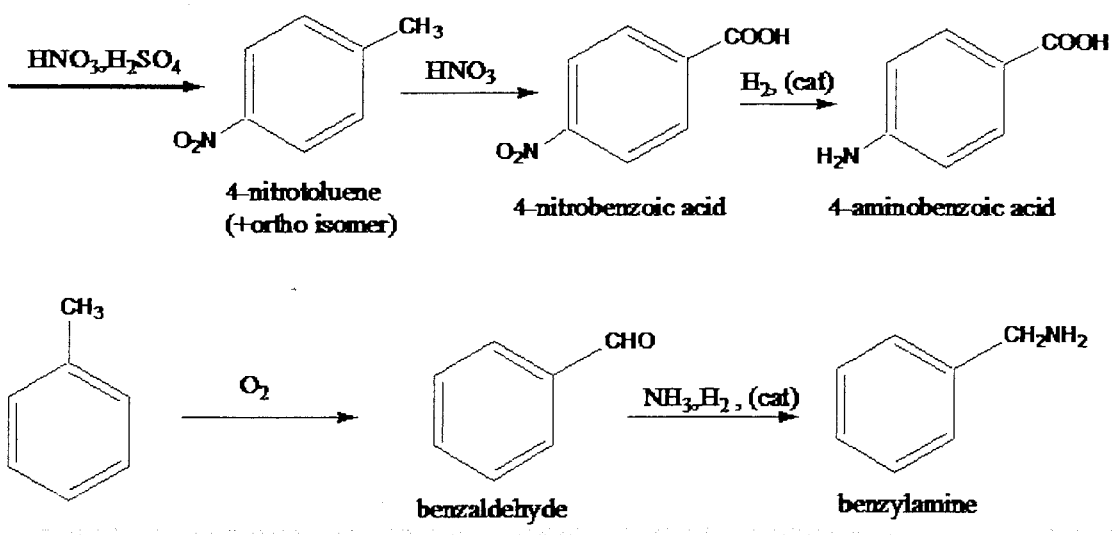


Fig- 4 Intermediates derived from Toluene

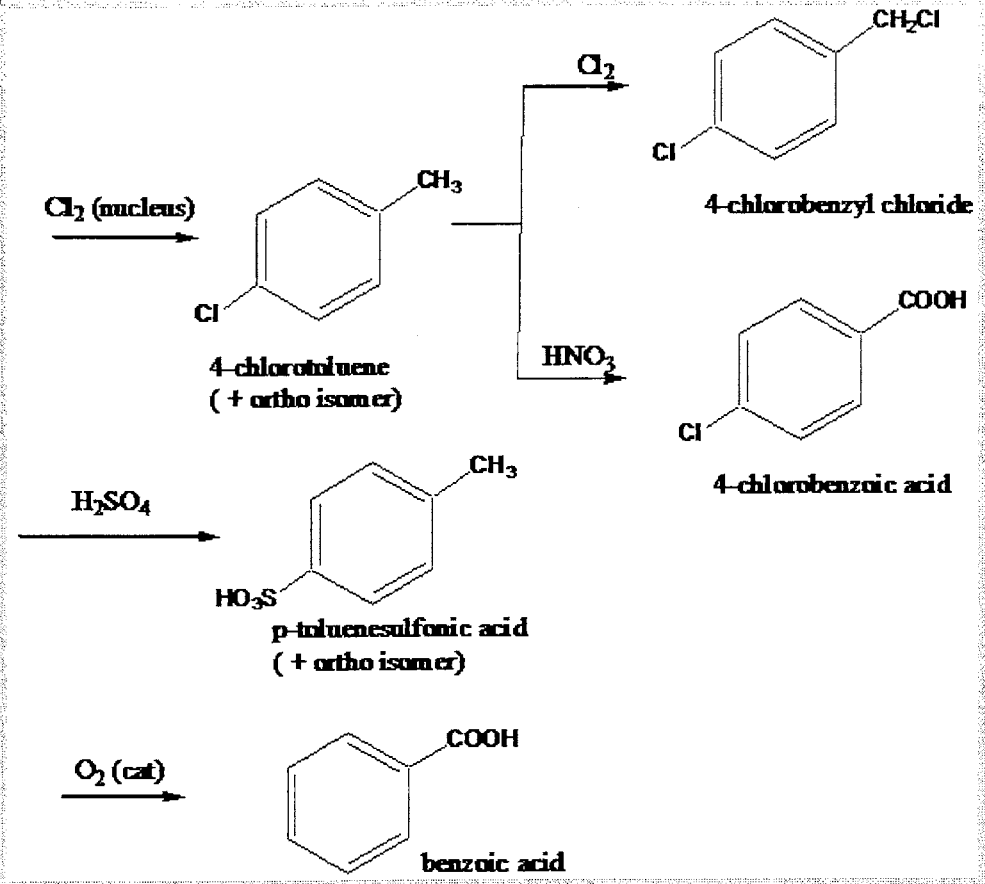


Fig.-5 Intermediates derived from Phenol

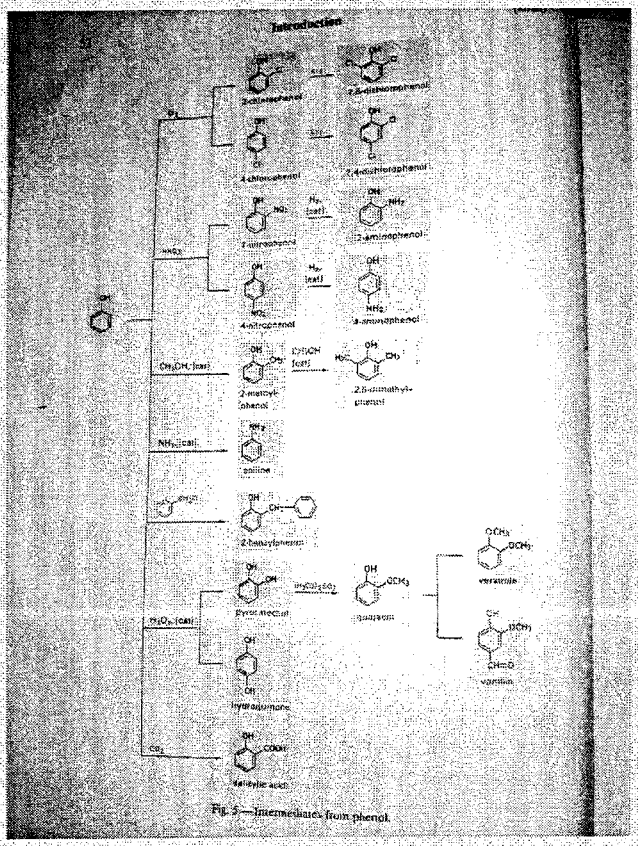


Fig.-5 Intermediates derived from Phenol

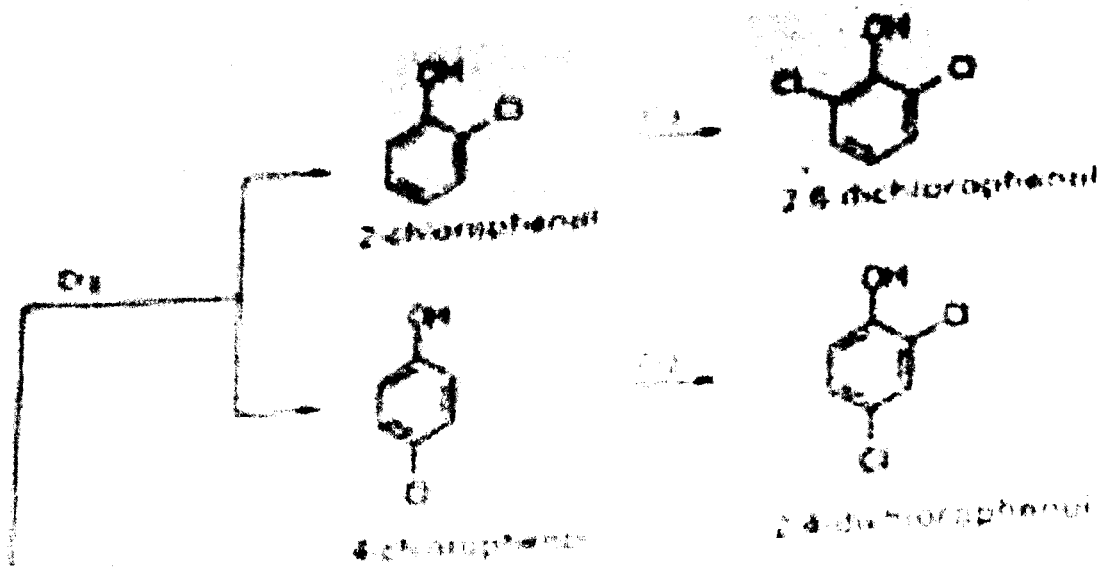


Fig.-5 Intermediates derived from Phenol

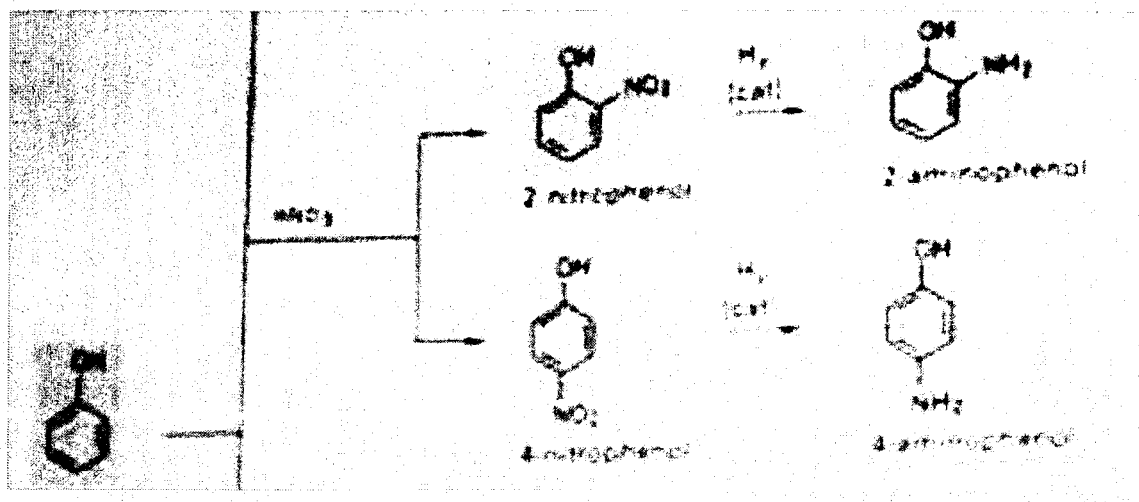


Fig.-5 Intermediates derived from Phenol

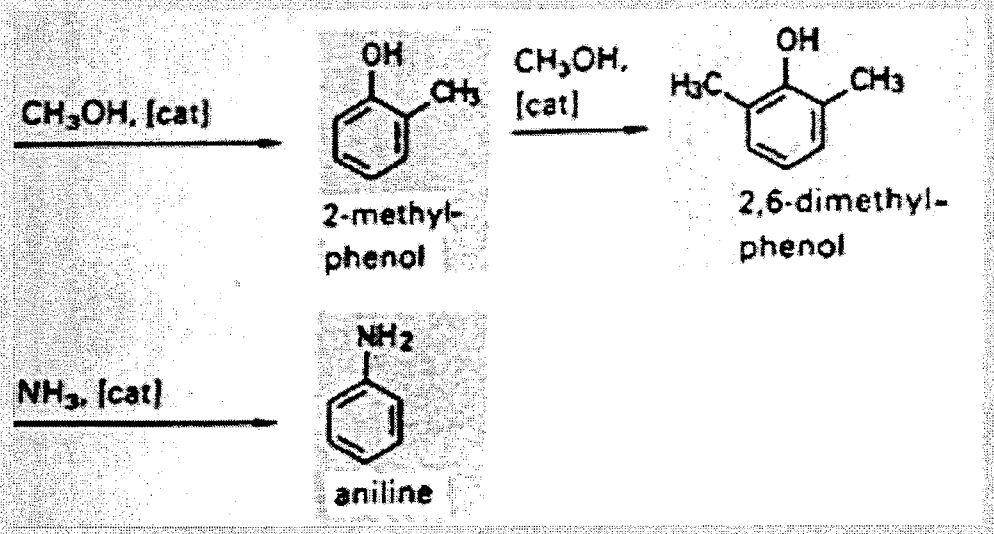


Fig.-5 Intermediates derived from Phenol

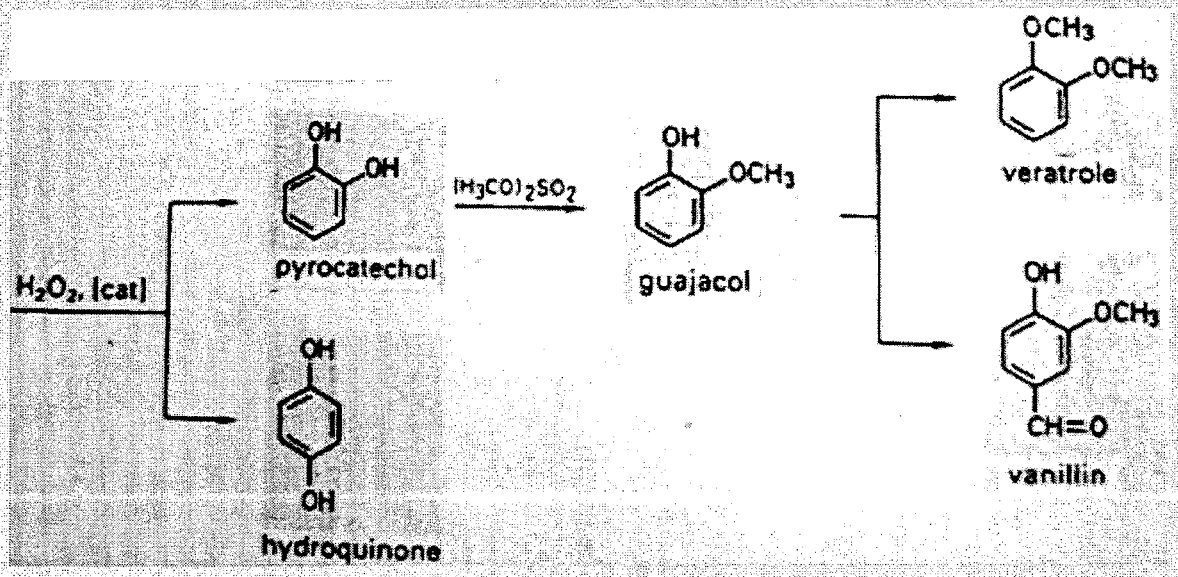


Fig.-6 Intermediates derived from Chlorobenzene

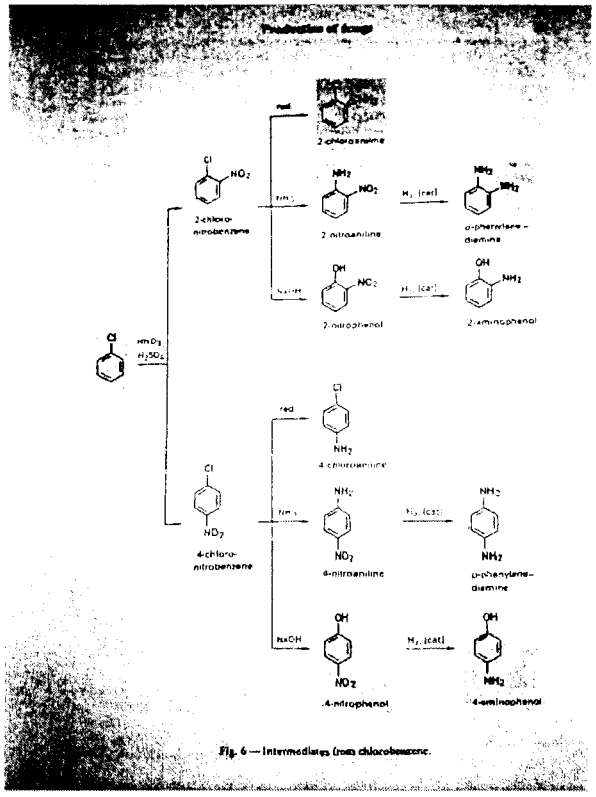
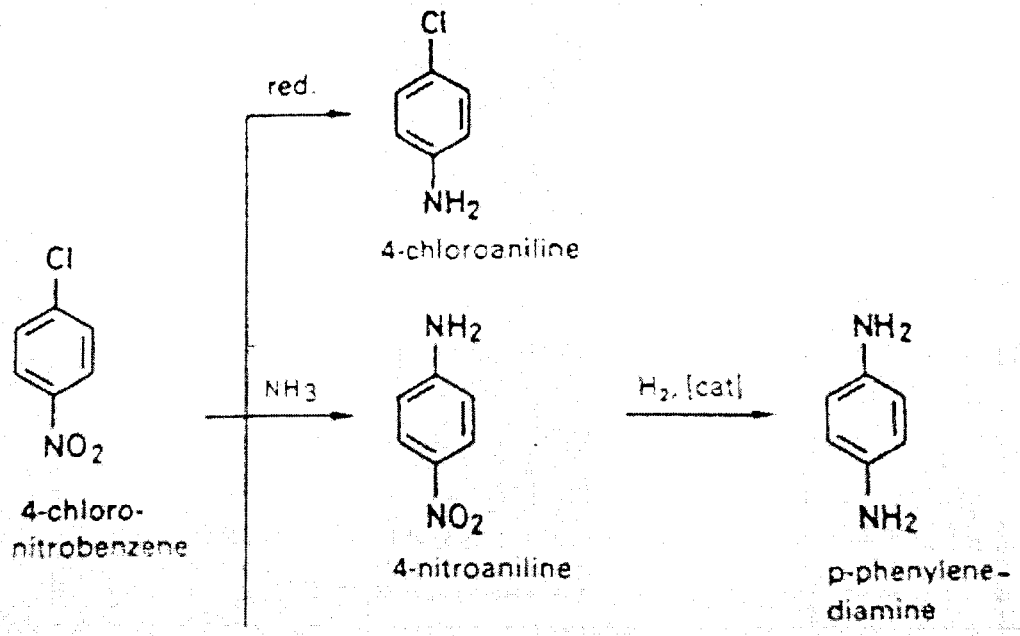
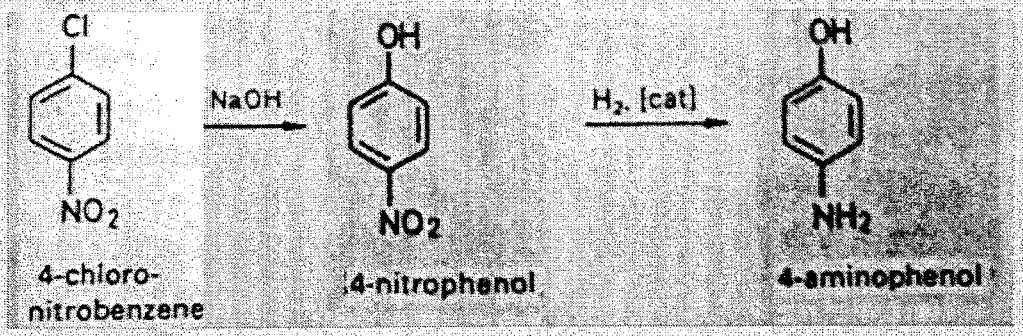


Fig.-6 Intermediates derived from Chlorobenzene



- Also applied on ortho isomers

Fig.-6 Intermediates derived from Chlorobenzene



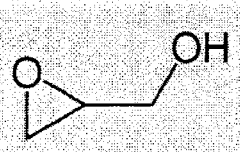
- Also applied on ortho isomers

Total Synthesis of Drugs, Important Pharmaceutical intermediate

Table 4-Important pharmaceutical intermediates

Intermediate	use
Acetanilide	sulfonamides
4-aminosalicylic acid	metoclopramide
Pyrocatechol	catecholamines, Guaiacol, Vanillin
Furfural	furazolidone
Fluorobenzene	droperidol,,flunarizine,haloperidol
Glycide	mephenesine, methocarbamol, diprophylline
4-nitrobenzoic acid	procaine, procainamide
Salicylic acid	acetylsalisylic acid, salicylamide,coumarins
Veratrole	carbidopa, methyldopa, papaverine, verapamile
Vanillin	levodopa

Glycide (Glycidol): 2,3-Epoxy-1-propanol



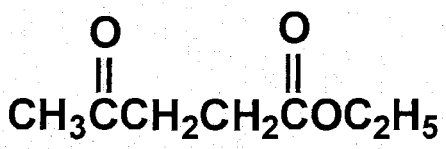
Drug Synthesis

الاصطناع (التخليق) الدوائي

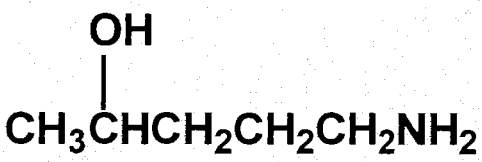
2. Chemical Nomenclature of drugs

Naming of polyfunctional organic compounds

- Identify all the functional groups present in the structure.
- Determine the functional group of higher priority.
- Name the compound using the suffix of the higher priority group.

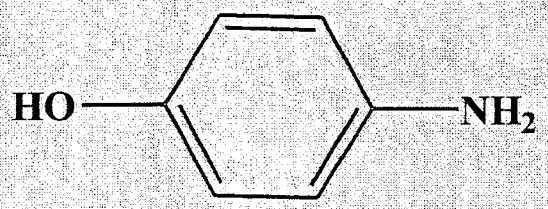


Ethyl 4-oxopentanoate

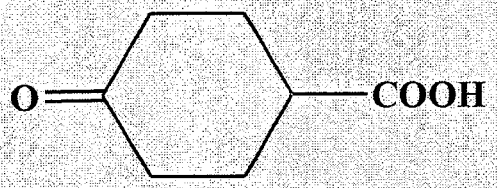


5-Aminopentan-2-ol

Naming of polyfunctional organic compounds



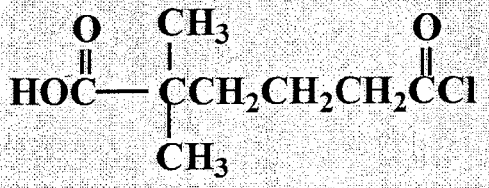
p-Aminophenol



4-Oxocyclohexanecaroxylic acid

Naming of polyfunctional organic compounds

-Choose the longest chain containing the higher number
- of functions including the higher priority one



5-Chlorocarbonyl-2,2-dimethylpentanoic acid

Classification of functional groups for purpose of nomenclature

A- The principal groups
They are cited either as prefixes or as suffixes

B-Subordinate groups
They are cited only as prefixes

A- The classification of the principal groups

Functional group	Suffix	Prefix
Carboxylic acids	-oic acid -carboxylic acid	carboxy
Acid anhydrides	-oic anhydride -carboxylic anhydride	-
Esters	-oate -carboxylate	alkoxycarbonyl
Thioesters	- thioate - carbothioate	alkylthiocarbonyl
Acid halides	-oyl halide -carbonyl halide	halocarbonyl

Continue A- The classification of the principal groups

Functional group	Suffix	Prefix
Amides	-amide -carboxamide	carbamoyl
Nitriles	-nitrile -carbonitrile	cyano
Aldehydes	-al -carbaldehyde	oxo
Ketones	-one	oxo
Alcohols	-ol	hydroxy
Phenols	-ol	hydroxy

Continue A- The classification of the principal groups

Functional group	Suffix	Prefix
Thiols	-thiol	mercapto
Amine	-amine	amino
Imines	-imine	imino
Ethers	-ether	alkoxy
Sulfides	- sulfide	alkylthio
Disulfides	- disulfide	-
Alkenes	-ene	-
Alkynes	-yne	-
Alkanes	-ane	