

Content

Page

AIM OF THE WORK	
SUMMARY	
INTRODUCTION	
Synthesis of imidazoles and imidazolones	
(1) From carboxylic acid derivatives	1
(2) From diketones	3
(3) From amide derivatives	7
(4) From amidine and related compounds	13
(5) From diamine derivatives and related compounds	19
(6) From nitrile compounds	22
(7) From amino acid compounds	25
(8) From amino alcohols	27
(9) From oxime compounds	28
(10) From nitroaniline and related compounds	29
(11) From nitropyridine derivatives	30
(12) From polymer bound compounds	30
(13) From benzoine compounds	32
(14) From tetracyanoethylencompounds.....	33
(15) From Epoxydiphenylketone	34
(16) From β -aminoketones compounds	34
(17) From schiff's bases	35
(18) By using microwaves	35
Chemical reaction of imidazoles and imidazolones	
Properties of imidazoles and imidazolones	37
Reaction of neutral imidazoles	
Basicity of imidazoles	38
Acidity of imidazoles and imidazolones	38
Electrophilic attack	
A- Electrophilic attack on nitrogen	39

(1) Alkyl halides and related compounds	39
(2) Aryl halide and related compounds	42
(3) Aroyl halides and related compounds	43
(4) Other electrophiles	44
- Reaction of cyanogens bromide with imidazole	44
B- Electrophilic attack on carbon	
(1) Alkyl halides and related compounds	45
(2) Nitration	48
(3) Bromination	49
(4) Iodination	50
(5) Reaction with aldeheydes and ketones	51
-Mannich reaction	51
(6) Oxidation	52
Nucleophilic attack	
A- Nucleophilic attack on carbon	
(1) Hydroxide ion and other O-Nucleophiles	53
(2) Amines and amide ion	54
B- Nucleophilic attack at nitrogen atom	55
Thermal and photochemical reactions	55
a- Fragmentation	55
b- Rearrangement	56
c- Ring opening reaction	56
Miscellaneous reaction	57
a- Diels-alder dimerization	57
b- Vilsmeier-Haack reaction	57
c- Pinacol-like rearrangement reaction	58
DISCUSSION	
Part I	
Synthesis and reaction of 2-(<i>N</i> -phthalimidomethyl)-4-chlorobenzylidene-5(4)-imidazoloneacetophenone (2)	60
Synthesis and reaction of 2-(4-(4-chlorobenzylidene)-1-[4-[3-chlorobenzyl]	70

oxiranecarbonyl]benzyl]-5-oxo-4,5-dihydro-1 <i>H</i> -imidazol-2-yl)isoindole-1,3-dione (9)	
---	--

Part II

Synthesis and reaction of 2-(<i>N</i> -phthalimidomethyl)-4-chlorobenzylidene-5(4)-imidazolone acetic acid (14).	75
Synthesis and reaction of 4-(4-chlorobenzylidene)-2-(1,3-dioxo-1,3-dihydroisoindol-2-ylmethyl)-5-oxo-4,5-dihydroimidazol-1-yl]acetylisothiocyanate(15).....	77

Part III

Synthesis and reaction of 2-(<i>N</i> -phthalimidomethyl)-4-phthalidene-5(4)-oxazolone (28)	85
A) Base-catalysed reactions of (28) with aromatic amines and amino acids	87
B) Base-catalysed ring opening reactions of (28)	90
i- Hydrazine hydrate	90
ii- Phenyl hydrazine	92
iii- Hydroxylamine hydrochloride	92
C) Acid-catalyzed ring opening of (28) with Aluminum chloride AlCl ₃ in presence of reactive aromatic substrates.....	94
BIOLOGICAL ACTIVITIES OF THE SYNTHESIZED COMPOUNDS	97
EXPERIMENTAL PART	102
REFERENCES	117
ARABIC SUMMARY	