SYNOPSIS

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The dissertation entitled "SYNTHETIC STUDIES IN NATURAL PRODUCTS" is divided into two parts. Part-A describes a brief account of furanoeremophilanes and Part-B accounts for the synthesis of pyrocurzerenone.

A brief account of furanoeremophilanes includes a general introduction to terpenoids, isoprene rule and eremophilanes as non-isoprenoid type terpenoids. Eremophilanes containing furan ring viz. Furanoeremophilanes and their various oxygenated derivatives have been discussed in brief.

The Part-B accounts for the synthesis of pyrocurzerenone, isolated from *Curcuma zedoaria* Roscoe. The synthesis starts with acylation of *meta*-cresyl methyl ether with succinic anhydride to yield β-(2-methyl-4-methoxy) benzoyl propionic acid (1.3a) with minor amount of β- (4-methyl-2-methoxy) benzoyl propionic acid (1.3b). Clemmensen reduction of keto acid (1.3) gave 4-(2-methyl-4-methoxyphenyl) butyric acid (1.5). The polyphosphoric acid cyclization of (1.5) gave 5-methyl-7-methoxy-1-tetralone (1.6) and 5-methoxy-7-methyl-1-tetralone (1.7).

The tetralone (1.6) was formylated with ethyl formate and sodium methoxide to yield 2-hydroxymethylene-5-methyl-7-methoxy-1-tetrolone (1.8). The reaction of (1.8) with n-butyl mercaptan gave corresponding thioenol ether (1.9) which on Mozingo desulphurization gave 2,5-dimethyl-7-methoxy-1-tetrolone (1.10).

Demethylation of methoxy tetralone (1.10 = 2.1) with aluminium iodide gave 2,5-dimethyl-7-hydroxy-1-tetralonne (2.2). The reaction of (2.2) with bromoacetone followed by cyclization with trifluroacetic acid as well as polyphosphoric acid gave 1,5,8-trimethyl-7,8-tetrahydro naphtho (2,1-b) furan (6H)-one (2.4). The reduction of naphthofuranone (2.4) with sodium borohydride followed by dehydration with *para*- toluenesulphonic acid as well as iodine gave desired pyrocurzerenone (2.6).

Research Student

(D. V. Awale)

Research Guide

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CHART-I

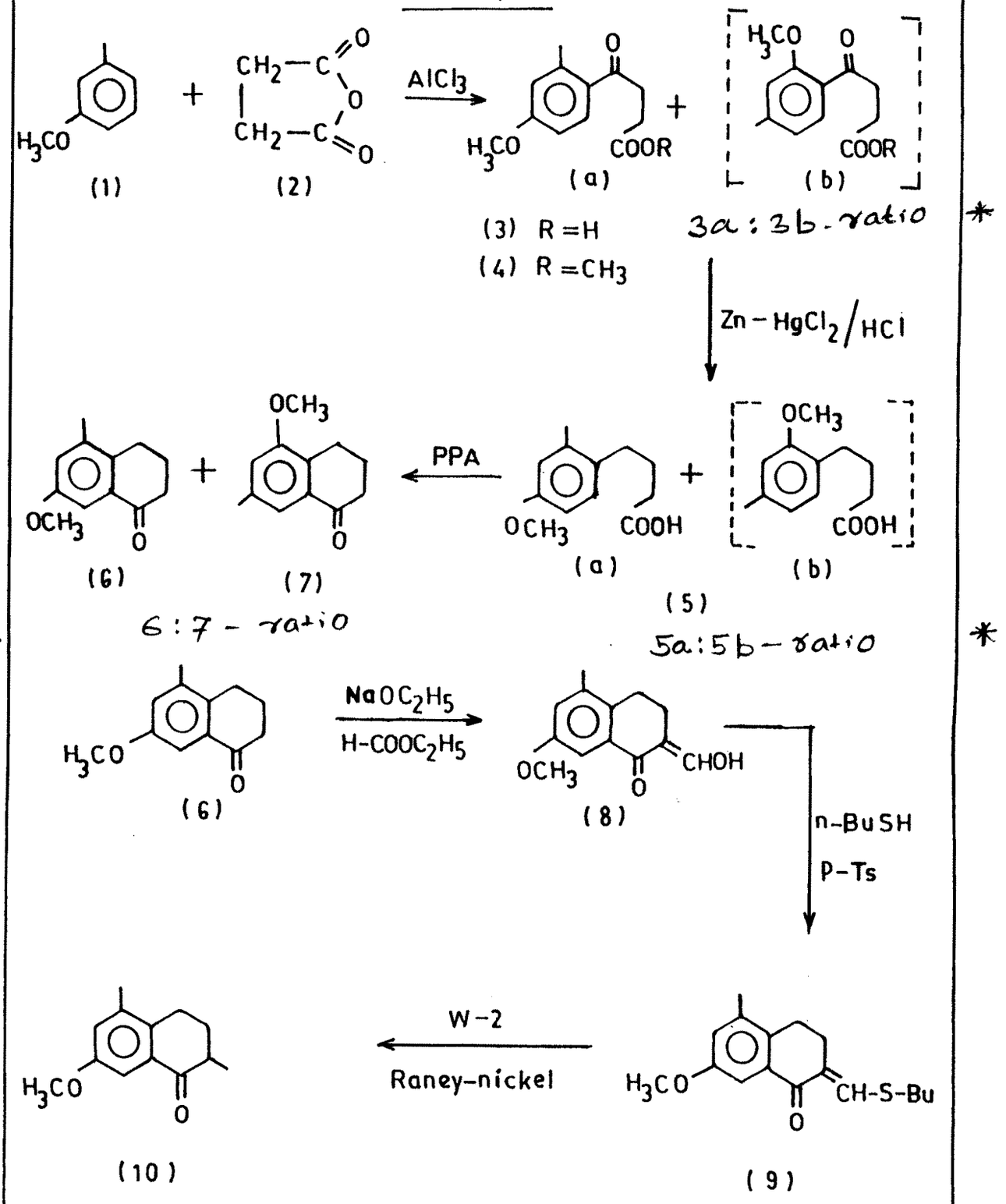
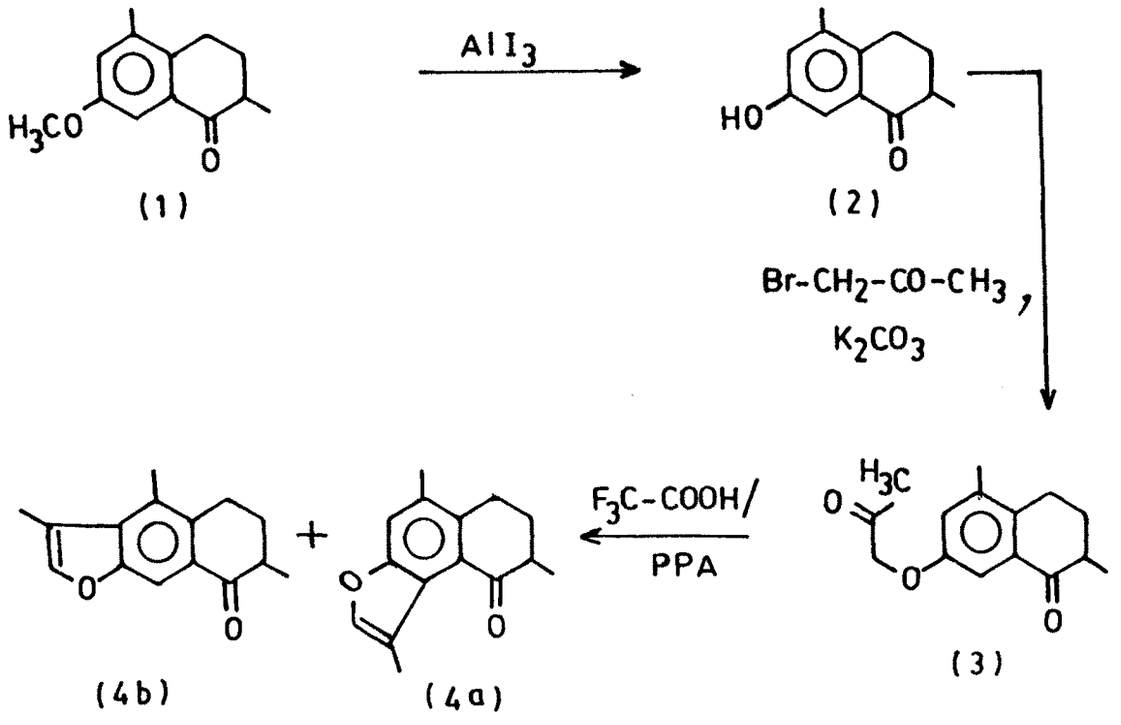

(1)
(2)
AlCl3
(a)
(b)
3a : 3b - ratio
(3) R = H
(4) R = CH3
Zn - HgCl2/HCl
PPA
(6)
(7)
6 : 7 - ratio
(5)
5a : 5b - ratio
NaOC2H5
H-COOC2H5
(8)
n-BuSH
P-Ts
W-2
Raney-nickel
(9)
(10)

CHART-2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(2)
Br-CH2-CO-CH3,
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F3C-COOH/
PPA
H3C
(3)
(4b)
(4a)
4a : 4b - ratio
NaBH4
I2 /
P-Ts
OH
(5)
(6)
PPA
(7)
(8)
(9)
8 : 9 - ratio