S Y N O P S I S

The dissertation entitled **"Applications of Polyphosphoric acid in Organic Synthesis"**, consists of two chapters and embodies accounts of : Chapter - I a reviews on polyphosphoric acid and Chapter-II, the present investigation on synthetic applications of polyphosphoric acid.

The Chapter-I presents a review on polyphosphoric acid, a versatile reagent used in organic synthesis. Structure, properties, methods of preparation and various applications are discussed.

In part-I of chapter-2, synthesis of an indanone intermediate (1.6) for occidol isomer - I (1.9) and occidol isomer - II (1.10) is described. 1,2,3 - Trimethylbenzene (1.1) was brominated with NBS to give (1.3). Alkylation of diethylmalonate with (1.3) followed by hydrolysis yielded 2,3-dimethylbenzylmalonic acid (1.5). Cyclization of (1.5) with PPA afforded 4,5-dimethylindan-1-one (1.6).The decarboxylation of (1.5) with pyridine followed by the PPA cyclization of the acid obtained (1.7) also gave (1.6).

The Part-II of chapter-2 is described the reaction of p-ethyl phenol with 3,3-dimethyl acrylic acid using PPA. The

major product of this reaction was 2,2-dimethyl-6-ethylchroman-4-one (2.3) and the minor one was the dihydrocoumarin derivative (2.4).

The Part-III of Chapter-2 describes an account of the reaction of isobutyl 3-phenyl-butyrate (2.10) with PPA. Intramolecular cyclization of (2.10) gave 3-methylindan-1-One (2.11) instead of the planned nor ar-turmerone (2.12). The indanone (2.11) was also prepared by PPA cyclization of 3-phenylbutyric acid (2.9).

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