PRESENT WORK
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The present work was undertaken to synthesise chalcones and related compounds from 2-hydroxy-4-ethoxyacetophenone, 2-hydroxy-4-ethoxy-5-nitroacetophenone, 2-hydroxy-4-ethoxy-5-bromoacetophenone, and to study antibacterial activity of the chalcones synthesised. The structure of the chalcones was proved by the study of their IR and UV spectra.

The thesis has been divided into two parts. In part I the synthesis of the chalcones and related compounds have been described and in part II the antibacterial activity of the chalcones and their IR and UV spectral study as well as NMR spectra of chalcone and related compounds derived from 2-hydroxy-4-ethoxy-5-nitroacetophenone and 4-chlorobenzaldehyde have been described.

PART - I: The work described in the Part I of the thesis has been divided into three sections.

SECTION - I

In this section the condensations of 2-hydroxy-4-ethoxy-acetophenone with various aldehydes in presence of alkali have been described. The aldehydes used were (1) benzaldehyde, (2) 2-methoxybenzaldehyde, (3) vanillin, (4) 3-nitrobenzaldehyde, (5) 4-chlorobenzaldehyde, (6) 4-nitrobenzaldehyde, (7) 2,4-dichlorobenzaldehyde. The chalcones obtained were brominated to the corresponding α:β dibromochalcones. They were cyclised to the corresponding
flavanones and oxidised to the corresponding flavones and flavonols. Ethyl acetoacetate adducts, their decarboxylation products and isoxazoline were also prepared from these chalcones.

SECTION - II

The condensations of 2-hydroxy-4-ethoxy-5-nitroaceto-phenone with various aldehydes in the presence of alkali as a condensing agent have been carried out. The derivatives and related compounds of chalcones have been prepared. The aldehydes used were (1) benzaldehyde (2) 2-methoxybenzaldehyde (3) vanillin (4) 4-chlorobenzaldehyde (5) 4-nitrobenzaldehyde (6) 4-methoxybenzaldehyde (7) 2,4-dichlorobenzaldehyde (8) 3-nitrobenzaldehyde.

SECTION - III

In order to study the constitutional factors on the chalcones formation, 2-hydroxy-4-ethoxy-5-bromoaceto phenone was condensed with different aldehydes (1) benzaldehyde (2) 2-methoxybenzaldehyde (3) vanillin (4) 4-chlorobenzaldehyde (5) 4-methoxybenzaldehyde (6) 2,4-dichlorobenzaldehyde (7) 3-nitrobenzaldehyde.

Flavanones, flavones, flavonols and derivatives were prepared from the chalcones as in the previous sections.
PART - II

In this part of the thesis the antibacterial activity of the chalcones has been described. It was studied by cup-diffusion method.

The chalcones were characterised by IR and UV spectra which have been described in this part of the thesis. NMR spectra of the chalcone and related compounds derived from 2-hydroxy-4-ethoxy-5-nitroacetophenone and 4-chloro-benzaldehyde have been described in this part of the thesis.