Chapter 11

Flavanones and Dihydroflavonols

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11.1 General introduction

This chapter is concerned with the closely related flavanones and dihydroflavonols. Flavanones are based upon structure (1), 2-phenylbenzopyran-4-one, which is flavanone itself. The parent compound is not known to be naturally occurring; the simplest plant flavanone has a hydroxyl group at position 7. The numbering system of the flavanone nucleus is similar to that in most other flavonoid series. Flavanones are isomeric with chalcones from which they can be obtained synthetically and from which they arise biosynthetically. Flavanones have a centre of asymmetry at C-2 so that naturally occurring members are often optically active. The absolute configuration of a number of these compounds has also been established. It is of historical interest that the isolation of optically active flavanones provided a strong argument that these compounds were natural and not simply artifacts resulting from overzealous treatment of natural chalcones.

The dihydroflavonols are constructed upon the same fundamental ring system (2) as the flavanones and are 2-phenyl-3-hydroxybenzopyran-4-ones. They are often called 3-hydroxyflavanones or flavanones. The numbering system is the same as that for the flavanones. 7-Hydroxydihydroflavonol is the simplest known naturally occurring member of the series. Dihydroflavonols have two asymmetric carbons, C-2 and C-3, the stereochemical implications of which will be mentioned in a separate section.

Flavanones and dihydroflavonols are interesting compounds, since they are obligate intermediates in flavonoid biosynthesis. Flavanones