



BOOK REVIEW

Phytochemistry of Fruit and Vegetables, edited by F. A. TOMÁS-BARBERÁN and R. J. ROBINS, Oxford University Press, Oxford, 1997. 375 pp., £75. ISBN 0 19 857790 7.

This volume is the proceedings of an International Symposium held by the Phytochemical Society of Europe in September 1995.

In the introductory chapter the editors emphasise the importance of secondary compounds not only in determining the appearance, colour, taste and aroma of fruit and vegetables, but also their possible roles in protecting plants against pathogens and (as dietary constituents) mankind against certain forms of disease.

Successive chapters deal with the contributions of carotenoids and phenolic compounds to colouring in fruit and vegetables. Reference is made to the isolation of genes responsible for carotenoid biosynthesis and the production of transgenic plants with increased or decreased levels of carotenoids. The modification of anthocyanin colours by the formation of complexes with co-pigments and chelates with metallic ions are described. The roles of phenolic compounds both as substrates in browning reactions and as antioxidants in lipid oxidation are discussed.

Astringency and the extent to which this sensation is related to the ability of astringent compounds to interact with salivary proteins is reviewed. Two contributions deal with nature and biosynthetic origins of compounds responsible for the aroma of fruits and vegetables, and a third with psychological factors influencing food choice.

An extensive survey of coumarins found in the different parts of fruits and vegetables is provided. The biosynthesis, detoxification and metabolic degra-

dation of these compounds are discussed, as are their possible ecological roles. Two complementary chapters deal with the physical and physiological changes observed in minimally processed fruits and vegetables, and with the role of phytoalexins and pre-formed antibacterial compounds in post harvest disease resistance.

The genetic manipulation of secondary compound biosynthesis is illustrated by reference to the genes controlling the synthesis of ethylene (which influences ripening processes in fruits) and of the genes controlling the synthesis of astringent tannins.

The distribution of gibberellins, their synthesis and roles in the development of fruit are discussed. The practical implications of gibberellin treatment which can induce not only fruit set, but the entire development of the fruit are emphasised.

Two chapters deal with the possible importance of dietary antioxidants as defences against coronary heart disease and of carotenoids, flavonoids and glucosinolates as defences against cancer. Glucosinolates are also referred to in a chapter on toxins in plant foods, emphasising our need to learn more of the ways in which, and at what concentrations, secondary compounds in the diet can influence human health. Ways in which the concentrations of secondary compounds can change dramatically during the development of plant organ, are pointed out in a general review of their ecological roles.

This publication is a valuable addition to the literature on secondary compounds, and is of particular interest in identifying ways in which the concentrations of these compounds may be altered and controlled in the interests of crop improvement.

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