

THE CHEMISTRY OF TEA (Review Paper)

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The marketability and valuation of black tea are, at present, determined subjectively by professional tea tasters, who assess the product on the basis of appearance of the dry tea, as well as the quality, colour and flavour characteristics of the brewed liquor. Studies of the chemical compounds which influence these subjective assessments have shown that (a) the desired black appearance of tea is determined by the relative amounts of breakdown products of chlorophyll, viz: phaeophytin, phaeophorbide and chlorophyllide, (b) quality is dependent on the content of theaflavins and their gallates, as well as on the level of theogallin present. The mode of formation of the group of theaflavin compounds is outlined, (c) liquor colour is due to a

large number of compounds, predominant among which is a complex and heterogeneous group, designated as thearubigins. These are composed partly of proanthocyanins, partly of derivatives of the products of non-enzymic browning reactions, (d) tea flavour is the result of a mixture of more than 300 different volatile compounds, some of which detract from the desired effect. Seasonal variations in tea flavour are the result of the effect of climatic conditions on the biosynthetic pathways operative during growth of the tea bush. Teas of good flavour utilize leucine as the precursor of volatile compounds, whereas in those teas which have less flavour, the precursor is acetate.

Mention is also made of the possible by-products obtainable from refuse tea and tea seeds, although none of these are being exploited on a commercial scale at the present time.