SEPARATION OF THE OXIDATION PRODUCTS OF (—) EPICATECHIN ON SEPHADEX LH—20 : SOME PROPERTIES OF FRACTION "F4"

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Black tea extracts have been fractionated by several workers but the methods used have so far been unsuccessful in identifying the chemical nature of the thearubigins. The alternative method of studying the oxidation of model compounds was followed. (—) Epicatechin was oxidised with a soluble preparation of tea polyphenoloxidase and the products, when fractionated on Sephadex LH–20 with 60% acetone gave four fractions (F_1 to F_4). Of these, F_4 resembled black tea thearubigins in its behaviour on paper chromatograms and with respect to its molecular weight. Several methods for the reduction of F_4 seemed to be unsatisfactory due to re-oxidation. Catalytic hydrogenation using platinum-charcoal in hydrochloric acid yielded products which were observed to be relatively stable with respect to re-oxidation. A partial structure was proposed for F_4 based on the results of chemical analyses, which indicated that enzymic oxidation of the B-ring led to head–to–tail coupling. Some evidence has been found for the presence of linkages involving C_6 (or C_8), and it is thought that C_6–C_6' (or C_2') linkages are preferred rather than those involving C_4.