

PHENYLPROPANOIDS FROM A NIGERIAN SAMPLE OF
CINNAMOMUM CASSIA

G.B. Lockwood, Department of Pharmacognosy, The School of Pharmacy, University of London, 29-39 Brunswick Square, London WC1N 1AX

Essential oils from leaf and bark of Cinnamomum spp have been widely studied. Bark oils from C. zeylanicum grown in Sri Lanka contain 42-75% cinnamaldehyde and from 4-10% eugenol, and leaf oils contain up to 95% eugenol and traces of cinnamaldehyde; apart from various terpenes, trace amounts of benzyl benzoate have also been identified in the leaf oil (Guenther 1950). Reported analysis of leaf and bark oils of C. zeylanicum introduced into West Africa show them to be similar to those of Sri Lankan origin (Talalaj 1967). Analysis of oils of C. cassia from Burma (Kya and Min 1970) and from China (ter Heide 1972) showed cinnamaldehyde/eugenol levels of leaf and bark samples to be similar to those of C. zeylanicum, but benzyl benzoate was not detected.

Trees of C. cassia Blume which have been introduced into the tropical region of Nigeria around Ondo State grow well, and plants can be propagated with ease from seeds reaching maturity in 6-10 years. The leaf and bark oils occur in yields comparable with those of commercial C. zeylanicum. Qualitative TLC, IR, and GLC on both polar (DEGS) and non-polar (E-301) columns, were used to establish the identity and relative proportions of the major constituents. Quantitative GLC of the leaf oil revealed unexpectedly over 90% benzyl benzoate with 4% cinnamaldehyde, while the bark oil contained over 70% cinnamaldehyde and 12% eugenol. Leaf oil bears no resemblance to any reported cinnamon leaf oils, and biosynthetic considerations suggest that benzyl benzoate is formed from cinnamic acid via benzoic acid in preference to eugenol which is the major phenyl propanoid expected in the leaf oils of Cinnamomum spp. Surprisingly this bark oil from C. cassia complies with B.P.C. standards set for Cinnamon Oil obtained from C. zeylanicum, whereas it does not meet requirements formerly set for Cassia Bark Oil. These results indicate the existence of a local chemical race of C. cassia which has obvious potential for an indigenous flavouring industry.

- Guenther, E. (1950) The Essential Oils, Vol. IV; New York
Van Nostrand, 213-240
Talalaj, S. (1967) West African Pharmacist 9: 10-12
Kya, P., Min, N.C. (1970) Union of Burma J. Life Sci.
3: 197-204
ter Heide, R. (1972) J. Agric. Fd. Chem. 20: 747-751