Geramcranolides of Erlangea cordifolia. Isolation and structures of 
cordifolia-54, -55, -P2, and -31 by spectral and X-ray methods
Maradufu, Asafu; Gatuma, Ambrose K; Crombie, W Mary L; Crombie, Leslie; Begley, Michael J
Date: 1984

Abstract:
In addition to cordifene (1) and cordifene 4β, 15-oxide (5), four new companion compounds 
cordifolia-54, -55, -P2, and -31 have been isolated from the insect-antifeedant plant Erlangea 
cordifolia. Cordifolia-54(2) is related to cordifene as the 2,3-dihydrodeoxy derivative, and 
cordifolia-55(3) is the acetate of a C-2,0-2-seco-cordifene resulting from a formal epoxide 
reduction. Cordifolia-31 is the methacrylate ester of the same sesquiterpene core as is present 
in cordifene 4β,15-oxide. Cordifolia-P2 has 1H and 13C n.m.r. data consistent with structure (4) 
but certain chemical shifts, multiplicities, and coupling constants suggest a conformation 
markedly different from the five other Erlangea structures. This has been confirmed by a single 
crystal X-ray analysis. Cordifolia-P2, in contrast to cordifene and its 4β, 15-oxide, has a negative 
Cotton effect near the n→π* maximum in the c.d. spectrum. This is explained by McPhail's 
generalisation if all three compounds have the same absolute configuration, since the C(5)– 
C(6)–C(7)–C(8) torsion angle is significantly <120°(99°) for -P2 but significantly >120°(157°, 159°) 
for cordifene and its oxide. On the other hand the idealised McPhail relationship between this 
torsion angle and the C[double bond, length half m-dash]C–C[double bond, length half m-
dash]O torsion angle of the lactone is incompletely obeyed since the latter is measured as +0.7° 
in cordifolia-P2.