

SHORT COMMUNICATIONS

BIFLAVONES FROM THE LEAVES OF
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PREVIOUS work on *Fitzroya patagonica* has revealed the presence of amentoflavone, cupressuflavone and hinokiflavone, and partial identification of mono-O-methylamentoflavone and apigenin¹. In the present investigation, we report the isolation and characterization of podocarpusflavone-A (Ia)² and isocryptomerin (IIa)² in addition to the other reported biflavones¹. The isolation of isocryptomerin for the first time from genus *Fitzroya* is of chemotaxonomic significance³ and shows chemical affinity of the genus with other conifers.

The acetone extract of the air-dried and powdered leaves of *F. patagonica* (1.0 kg) procured from Sims park, Coonoor, India, was concentrated and treated with petrol (60–80), benzene and chloroform, successively, till the solvent in each case was almost colourless. The resulting residue was treated with boiling water and the insoluble gummy mass was dried and extracted with ethyl acetate. The ethyl acetate extract was evaporated to dryness to yield a dark brown solid (2.5 g) which responded to the colour test with Zn-HCl (pink).

TLC examination [silica gel (BDH), benzene-pyridine-formic acid (BPF), 36:9:5] showed three compact spots. The crude product was separated by preparative TLC (silica gel, BPF, 36:9:5) into three components which were labelled as FP-I (300 mg, R_f 0.18), FP-II (100 mg, R_f 0.34), and FP-III (80 mg, R_f 0.52).

FP-I: FP-I was found identical with the constituents reported earlier¹.

FP-II: FP-II was comparable with podocarpusflavone-A on TLC. But on methylation it gave a mixture of hinokiflavone pentamethyl ether⁴ (minor) and amentoflavone hexamethyl ether⁵ (major). FP-II was acetylated with pyridine and acetic anhydride. The acetate, on crystallization from CHCl_3 -MeOH, gave colourless needles of the major constituent, m.p. 255–56°. It was characterized as 4', 5, 5'', 7, 7''-pentaacetoxy-4''-O-methylamentoflavone

(Ib)⁶. ¹H NMR (CDCl_3 , 100 MHz, δ -scale) of Ib: 7.25(1H, d, $J = 3$ Hz, H-8), 6.84(1H, d, $J = 3$ Hz, H-6), 6.98(1H, s, H-6''), 7.40(1H, d, $J = 9$ Hz, H-5'), 7.99–8.03(2H, m, H-2', 6'), 7.49(2H, d, $J = 9$ Hz, H-2''', 6'''), 6.78(2H, d, $J = 9$ Hz, H-3''', 5'''), 6.60, 6.68(1H each, s, H-3, 3''), 2.05(3H, s, OAc-4'), 3.76(3H, s, OMe-4'''), 2.44, 2.48 (6H, singlets, OAc-5,5'') and 2.08, 2.31 (6H, singlets, OAc-7, 7'').

FP-III: FP-III was comparable with isocryptomerin⁷ and its permethylated derivative was identical with hinokiflavone pentamethyl ether⁷. FP-III was acetylated with pyridine and acetic anhydride and crystallized from CHCl_3 -MeOH to yield colourless needles of isocryptomerin tetraacetate (IIb), m.p. 213–14°, ¹H NMR (100 MHz, CDCl_3 , δ -scale): 6.84(1H, d, $J = 3$ Hz, H-6), 7.31(1H, d, $J = 3$ Hz, H-8), 7.24(1H, s, H-8''), 6.62(1H, s, H-3), 6.58(1H, s, H-3''), 7.79(2H, d, $J = 9$ Hz, H-2', 6'), 7.91(2H, d, $J = 9$ Hz, H-2''', 6'''), 7.03(2H, d, $J = 9$ Hz, H-3', 5'), 7.24(2H, d, $J = 9$ Hz, H-3''', 5'''), 3.92(3H, s, OMe-7''), 2.44(3H, s, OAc-5''), 2.35(6H, s, OAc-5,7) and 2.31(3H, s, OAc-4''').

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