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PURPURIN, A NEW FLAVANONE FROM *TEPHROSIA PURPUREA* SEEDS

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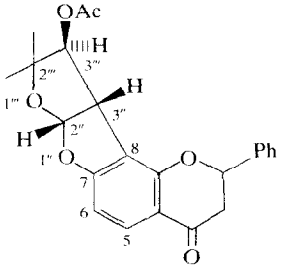
Previous investigations of the genus *Tephrosia* [1–3] have revealed the presence of rotenoids and novel flavonoids. In the present study, a new flavanone has been characterized in seeds of *Tephrosia purpurea*.

Air-dried seeds (920 g), collected from the Delhi University campus, were powdered and extracted with petrol (bp 60–80°), C_6H_6 and EtOH. The petrol extract gave pongamol [4], isolonchocarpin [5], karanjin [6], lanceolatin-B [6], kanjone [6] and sitosterol [6]. Column chromatography of the benzene extract resulted in the isolation of the new flavanone, named as purpurin (**1**).



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Purpurin crystallized from EtOAc–petrol as colourless needles, mp 145–147°, $[\alpha]_D^{25}$ −67.41° ($CHCl_3$), molecular formula $C_{23}H_{22}O_6$ (M^+ 394). It gave no colour with $FeCl_3$. λ_{max}^{MeOH} nm: 270, 315. ν_{max}^{KBr} cm^{-1}: 1735 (acetate CO), 1675 (flavanone CO), 1375 and 1360 (*gem*-dimethyl). ^{1}H NMR (90 MHz, $CDCl_3$): δ 1.08 (*s*, 3H, Me), 1.26 (*s*, 3H, Me), 2.08 (*s*, 3H, OAc), 2.95 (*m*, 2H, H-3), 5.56 (*m*, 1H, H-2), 6.5 (*d*, 1H, J = 9 Hz, H-6), 7.83 (*d*, 1H, J = 9 Hz, H-5), 7.35 (*s*, 5H, B-ring protons), 3.98 (*d*, 1H, $J_{2''3''}$ = 7 Hz, H-3″), 6.46 (*d*, 1H, $J_{2''3''}$ = 7 Hz, H-2″), 5.98 (*s*, 1H, H-3‴). These data are in agreement with the structure of 2‴,2‴-dimethyl-3‴-acetoxytetrahydrofurano(5‴,4‴-b)-dihydrofurano(5″,4″-h)flavanone. The *cis* configuration was assigned to the $C_{2''}$ and $C_{3''}$ protons on the basis of the coupling constant, $J_{2''3''}$ = 7 Hz, and by analogy with the absolute configuration of semiglabrin [7].

Mass spectral fragments (*m/e* 394, 335, 334, 319, 305, 291, 265, 231, 131, 104, 103, 91, 77) were similar to those reported for semiglabrin [7]. Further support was obtained by the DDQ oxidation [8] of purpurin. The DDQ oxidation product obtained from semiglabrin and purpurin under identical conditions was found to be same, suggesting the structure of purpurin as 2,3-dihydrosemiglabrin.

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