

Flavones from *Striga lutea*

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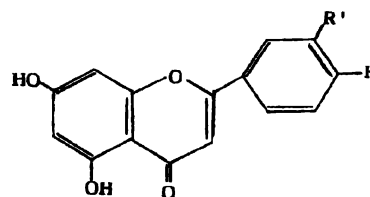
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Striga lutea (Fam : Scrophulariaceae) is an erect scabrous hirsute, branching parasitic herb on sugarcane and sorghum. In our biological investigation, the petroleum ether and the chloroform extracts of *S. lutea* have shown significant antifertility and estrogenic properties^{1,2}. Several flavonoids have been reported from *Striga lutea*, *S. asiatica* and *S. aspera*³. We report here the isolation of two known flavones acacetin and 3',4'-dimethyl ether of luteolin, both possessing significant antifertility activity, from the whole plant of *S. lutea*.

The shade-dried whole plant (2 kg) of *S. lutea* was extracted successively with petroleum ether (b.p. 60–80°), chloroform, ethanol (95%) and distilled water. The chloroform extract was subjected to chromatographic analysis over silica gel. Elution of the column with petroleum ether (b.p. 60–80°)-ethyl acetate (70 : 30) afforded a yellow solid (20 mg), m.p. 262° (Found : C, 67.40, H, 4.32. C₁₆H₁₂O₅ requires : C, 67.60, H, 4.2%); responded positively to flavonoid test with magnesium and HCl; $\lambda_{\max}$ (MeOH) 268, 328, (AlCl₃) 278, 302, 344, 382 sh, (AlCl₃ + HCl) 278, 300, 338, 382 sh, (NaOMe) 204, 273 sh, 366, (NaOAc) 270, 298, 340, (NaOAc, H₃BO₃) 270, 298, 340 nm; $\nu_{\max}$ (KBr) 2 918 (OH) and 1 672 cm⁻¹ (α,β -unsaturated ketone), 1 655, 1 628, 1 611, 1 281, 1 099, 908, 582 cm⁻¹; ¹H nmr δ (100 MHz; DMSO-d₆) 12.27 (1H, s, C₅-OH), 8.02 (2H, d, *J* 8.9 Hz, H-2', H-6'), 7.09 (2H, *J* 8.9 Hz, H-3', H-5'), 6.85 (1H, s, H-3), 6.48 (1H, d, *J* 2.0 Hz, H-8), 6.17 (1H, d, *J* 2.0 Hz, H-6) and 3.84 (3H, s, C₄-OCH₃). It was identified as acacetin (1).

Further elution of the column with petroleum ether (b.p. 60–80°)-ethyl acetate (50 : 50) furnished another flavonoid (15 mg), m.p. 278° (Found : C, 64.87; H, 4.68. C₁₇H₁₄O₆ requires : C, 64.96; H, 4.45%); $\lambda_{\max}$ (MeOH) 242, 268, 340, (AlCl₃) 262, 726, 294, 356, 384, (AlCl₃ + HCl) 260, 278, 294, 350, 414, (NaOMe) 278, 312, 364, (NaOAc) 272, 344, (NaOAc, H₃BO₃) 270, 344 nm; $\nu_{\max}$ (KBr) 2 917 (OH), 1 655 (α,β -unsaturated ketone), 1 610, 1 582, 1 296, 1 121, 995 and 644 cm⁻¹; ¹H nmr δ (100 MHz : DMSO-d₆) 11.26

(1H, s, C₅-OH), 7.68 (1H, dd, *J* 8.2, 2.0 Hz, H-6'), 7.55 (1H, d, *J* 2.0 Hz, H-2'), 7.11 (1H, d, *J* 8.9 Hz, H-5'), 6.96 (1H, s, H-3), 6.52 (1H, d, *J* 2.0 Hz, H-8), 6.19 (1H, d, *J* 2.0 Hz, H-6), 3.89 (3H, s, C₃'-OCH₃) and 3.85 (3H, s, C₄'-OCH₃). It was identified as 3',4'-dimethyl ether of luteolin (2).



1; R = OCH₃, R' = H

2; R, R' = OCH₃

Compounds 1 and 2 have shown significant antifertility and estrogenic activity in female rats. The antifertility activity was reversible on withdrawal of the treatment².

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