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Short Note

9-Methyl-2*H*-chromeno[8,7-*d*]isoxazol-2-one *N*-oxide

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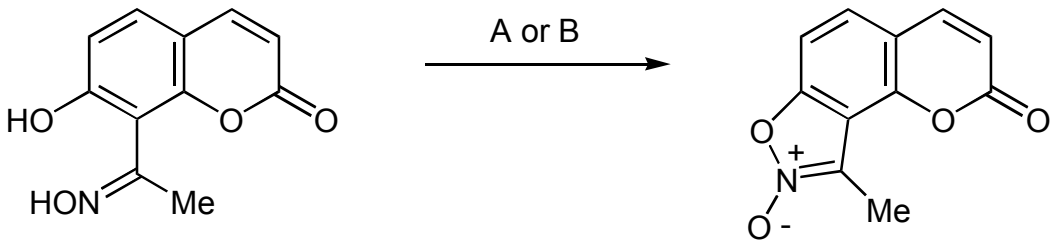
As part of a research programme targeting novel molecules derived from nitrogen derivatives of *o*-hydroxyaryl ketones [1] we synthesised 7-hydroxy-8-acetylcoumarin oxime and we subsequently oxidized it with lead tetraacetate (LTA) as well as with diacetoxy iodobenzene (DIB). The reactions led to the formation of the oxidative cyclisation product, 9-methyl-2*H*-chromeno[8,7-*d*]isoxazol-2-one *N*-oxide , in good yields. It is well known that isoxazole ring possesses interesting biological activity especially as acetyl cholesterinase inhibitor [2] and as antimicrobial agent [3].



A: $Pb(OAC)_4$ / THF B: $PhI(OAc)_2$ / CH_2Cl_2

7-Hydroxy-8-acetylcoumarin oxime was prepared according to the literature method [4] whereas commercially available lead tetraacetate as well as diacetoxy iodobenzene were supplied by Aldrich.

Method A

1.37 g (3.09 mmol) of LTA are added to a suspension of 0.5 g (2.30 mmol) of 7-hydroxy-8-acetylcoumarin oxime in 20 ml THF in an ice-bath. The mixture was then stirred magnetically at 0-4 ºC for 2 hrs. Filtration of the precipitate, which was formed, gave a solid which was recrystillised from petroleum ether to afford (0.33 g, 67 %) of the desired as white crystals. The product was identified by its ^{1}H NMR, ^{13}C NMR and MS and elemental analysis.

Method B

0.75 g (2.33 mmol) of DIB are added to a suspension of 0.5 g (2.30 mmol) of 7-hydroxy-8-acetylcoumarin oxime in 20 ml CH_2Cl_2 in an ice-bath. The mixture was then stirred magnetically at r.t. for 24 hrs. Evaporation of the solvent gave an oil which was then subjected to column chromatography (silica gel 70-230 mesh). Elution with a mixture of petroleum ether / ethylacetate 1:1 afforded (0.32 g, 65 %) the desired as white crystals. The product was identified by its ^{1}H NMR, ^{13}C NMR and MS and elemental analysis.

M.p. 208.5-209.5 °C.
^{1}H NMR (400 MHz, DMSO-d_6): 2.47 (s, 3H), 6.47-6.50 (d, 1H, *J*=9.7),7.32-7.34 (d, 1H, *J*=8.6), 7.83-7.85 (d, 1H, *J*=8.6), 8-11-8.13 (d, 1H, *J*=9.7).
^{13}C NMR (100 MHz, DMSO-d_6): 11.2, 104.7, 109.7, 115.0, 115.2, 128.9, 129.5, 139.7, 145.5, 151.8, 159.5.
MS *m/z* (ES+): 240 $[M+Na]^+$, 217 $[M]^+$, 202, 201, 187.
Anal. Calc. for $C_{11}H_7NO_4$: C 60.83, H 3.25, N 6.45; found: C 60.73, H 3.22, N, 6.39.

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