SYNTHESIS OF 6-(ADAMANTYL-1)-3-CYANO-2(1H)-PYRIDINETHIONE

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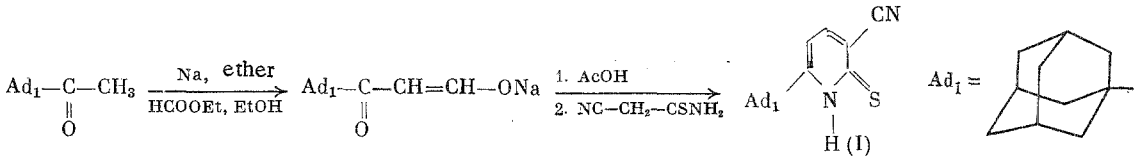
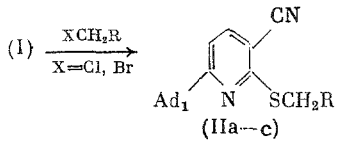
Both substituted 3-cyano-2(1H)-pyridinethiones [1] and adamantane derivatives [2] display a range of biological activity. In order to combine these fragments into a single molecule, we developed a method for the synthesis of previously unknown 6-(adamantyl-1)-3-cyano-2(1H)-pyridinethione (I). The yield of (I) was 62%, mp 222-225°C (dec., from absolute ethanol). The PMR spectrum of (I) at 60 MHz in DMSO (δ, ppm) shows characteristic signals at 6.63 d (1H, H^5), 7.98 d (1H, H^4), $J_{4,5}$ = 8 Hz. IR spectrum (KBr, ν, cm^{-1}): 2220 (CN). UV spectrum (EtOH, λ_{max}, nm): 309, 408. Mass spectrum (m/z): M^+ 270.



Pyridinethione (I) is readily alkylated at about 20°C in ethanol in the presence of bases at the sulfur atom to form substituted pyridines (IIa)-(IIc) in 58-64% yield.



(IIa—c)

R = COOMe (a), COOEt (b), CN (c)

The structures of the compounds obtained were supported by spectral data and elemental analysis.

LITERATURE CITED

1. Japanese Patent No. 7039263; Chem. Abstr., 74, 87836 (1971); Japanese Patent No. 7039264; Chem. Abstr., 74, 125459 (1971); Japanese Patent No. 75160277; Chem. Abstr., 85, 78012 (1976); Japanese Patent No. 75140487; Chem. Abstr., 85, 21428 (1976).
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