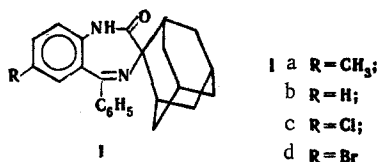


1,2-DIHYDRO-3H-1,4-BENZODIAZEPIN-2-ONE-3-SPIRO-2'-ADAMANTANES

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Medicinals of practical importance have been found among both 1,2-dihydro-3H-1,4-benzodiazepin-2-one and adamantane derivatives. We have synthesized 1,2-dihydro-3H-1,4-benzodiazepin-2-one-3-spiro-2'-adamantanes (I) from 5-substituted 2-aminobenzophenones.



A mixture of 0.83 g (3.6 mmole) of 5-chloro-2-aminobenzophenone and 0.99 g (3.6 mmole) of 2-aminoadamantane-2-carboxylic acid chloride hydrochloride in 10 ml of anhydrous chloroform was refluxed for 3 h, after which the solvent was removed by distillation at reduced pressure, and 10 ml of water and 1 ml of 25% ammonium hydroxide were added to the residue at room temperature. The mixture was extracted with toluene, the extract was dried with sodium sulfate, and the toluene was removed by distillation. The residue was crystallized from ethanol to give 0.77 g (55%) of 7-chloro-5-phenyl-1,2-dihydro-3H-1,4-benzodiazepin-2-one-3-spiro-2'-adamantane (Ic) with mp 300-302°. A similar procedure was used to obtain Ia (mp 278-280°), Ib (mp 265-276°), and Id (mp 305-307°). The results of elementary analysis (C, H, and N) were in agreement with the calculated values. IR spectrum of I: 1675 (C=O), 1600 (C=N), and 3180-3400 cm⁻¹ (free and associated NH groups), and other bands that characterize 1,2-dihydro-3H-1,4-benzodiazepin-2-ones. The intense absorption bands at 2860-2910 cm⁻¹ correspond to the stretching vibrations of the C-H bonds of the adamantane ring. UV spectrum, λ_{max} (log ε): 205 (4.53), 231 (4.53), and 333 nm (3.23). The molecular weights of I were established by mass spectrometry.

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