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SYNTHESES BASED ON BROMOMETHYL 1-ADAMANTYL KETONE

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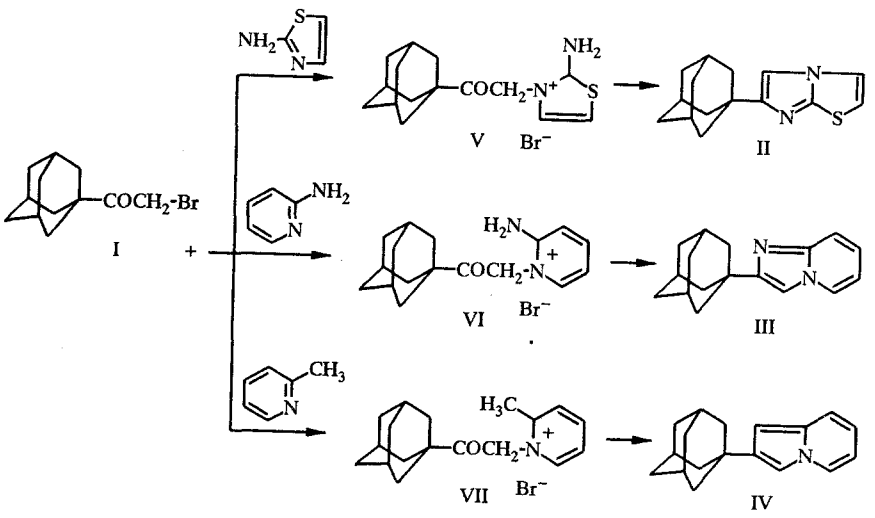
As is known, imidazo[2,1-b]thiazoles exhibit mutagenic [1], antitumorigenic [2], and immunodepressive [3] activity, imidazo[1,2-a]pyridines have antiulcerous action [4], and indolizines are used as antiviral agents [5].

As the investigations progressed on the synthesis of heterocyclic compounds containing adamantyl substituents and the search among them for biologically active compounds, we obtained the first representatives of the corresponding adamantyl-substituted bicyclic systems — 2-(1-adamantyl)imidazo[2,1-b]thiazole (II), 2-(1-adamantyl)imidazo[2,1-a]pyridine (III), and 2-(1-adamantyl)-indolizine (IV) by the reaction of bromomethyl 1-adamantyl ketone (I) with 2-aminothiazole, 2-aminopyridine and 2-picoline, respectively.

It was found that on heating the mixture in absolute alcohol, the reaction proceeds through the intermediate formation of hydrobromides: 2-amino-3-(1-adamantoylmethyl)thiazolium (V), 2-amino-3-(1-adamantoylmethyl)pyridinium (VI) and N-(1-adamantoylmethyl)picolinium (VII) bromides, which were converted into compounds II, III, and IV by heating in a sodium hydrocarbonate solution.



Compound II, mp 75-77°C (from aqueous alcohol). Yield 99%. IR spectrum (here and below in KBr tablets): 2900, 2850 cm^{-1} (CH_2 of adamantane).

Compound III, mp 189-191°C (from ethanol). Yield 28%. IR spectrum: 2910, 2860 (CH_2 of adamantane), 1600 cm^{-1} (C=C).

Compound IV, mp 149-151°C (from methanol). Yield 58%. IR spectrum: 2900, 2850 (CH_2 of adamantane), 1605 cm^{-1} (C=C).

Compound V, mp 141-142°C (from alcohol). Yield 43%. IR spectrum: 2900, 2850 (CH_2 of adamantane), 1700 (C=O), 3050 cm^{-1} (NH_2).

Compound VI, mp 114-115°C (from alcohol). Yield 96%. IR spectrum: 2900, 2850 (CH_2 of adamantane), 1710 (C=O), 3400 cm^{-1} (NH).

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Compound VII, mp 241-243°C. Yield 50%. IR spectrum: 2910, 2850 (CH_2 of adamantane), 1720 cm^{-1} (C=O). The data of the elemental analysis correspond to the calculated values.

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