

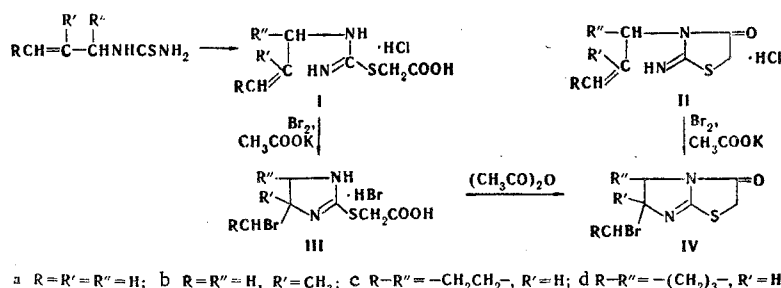
CYCLIZATION OF SUBSTITUTED N-ALLYLPSEUDOTHIO-
HYDANTOINS AND N-ALLYLPSEUDOTHIOHYDANTOIC ACIDS

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Condensed systems containing thiazolidine and imidazoline rings were obtained by cyclization of substituted N-allylpseudothiohydantoins and N-allylpseudothiohydantoic acids.

Pseudothiohydantoic acids I and pseudothiohydantoins II were synthesized by methods similar to those in [1, 2]: N-methallylpseudothiohydantoic acid hydrochloride (Ib),* $C_7H_{12}N_2O_2 \cdot HCl$, mp 166°;



N-(2-cyclopenten-1-yl)pseudothiohydantoic acid hydrochloride (Ic), $C_8H_{12}N_2O_2S \cdot HCl$, mp 138°; 2-imino-3-(2-cyclopenten-1-yl)pseudothiohydantoin hydrochloride (IIc), $C_8H_{10}N_2OS \cdot HCl$, mp 151°; 2-imino-3-(2-cyclohexen-1-yl)pseudothiohydantoin hydrochloride (IId), $C_9H_{12}N_2OS \cdot HCl$, mp 183°.

Bromination of hydrochlorides I and II in the presence of potassium acetate [3] proceeded with simultaneous cyclization to give compounds of the III and IV type (in the absence of potassium acetate, addition products were formed): S-(4-bromomethyl-2-imidazolin-2-yl)mercaptoacetic acid hydrobromide (IIIa), $C_6H_9BrN_2O_2S \cdot HBr$, mp 160°; S-(4-methyl-4-bromomethyl-2-imidazolin-2-yl)mercaptoacetic acid hydrobromide (IIIb), $C_7H_{11}BrN_2O_2S \cdot HBr$, mp 191°; S-(4-bromo-1,3,3a,5,6,6a-hexahydrocyclopenta[d]imidazol-2-yl)mercaptoacetic acid hydrobromide (IIIc), $C_8H_{11}BrN_2O_2S \cdot HBr$, mp 170°; 3-oxo-6-bromomethyl-2,3,5,6-tetrahydroimidazo[2,1-b]thiazole (IVa), $C_6H_7BrN_2OS$, mp 173°; 3-oxo-6-methyl-6-bromomethyl-2,3,5,6-tetrahydroimidazo[2,1-b]thiazole hydrobromide (IVb, obtained on prolonged standing of a solution of IIIb), $C_7H_9BrN_2OS \cdot HBr$, mp 162°; 3-oxo-7-bromo-2,3,5,6,7,7a-hexahydro-4aH-cyclopenta[4,5]imidazo[2,1-b]thiazole hydrobromide (IVc, obtained also by alternative synthesis from IIIc by the action of acetic anhydride), $C_8H_9BrN_2OS \cdot HBr$, mp 175°; 3-oxo-8-bromo-2,3,4,4a,5,6,7,7a-octahydrobenzo[4,5]imidazo[2,1-b]thiazole hydrobromide (IVd), $C_9H_{11}BrN_2OS \cdot HBr$, mp 103°. The UV spectra of compounds of the IV type, like substituted 2-iminopseudothiohydantoins [4], have three absorption maxima at 230-235, 245-255, and 260-275 nm.

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* All of the compounds synthesized for the first time have satisfactory analytical characteristics.

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