

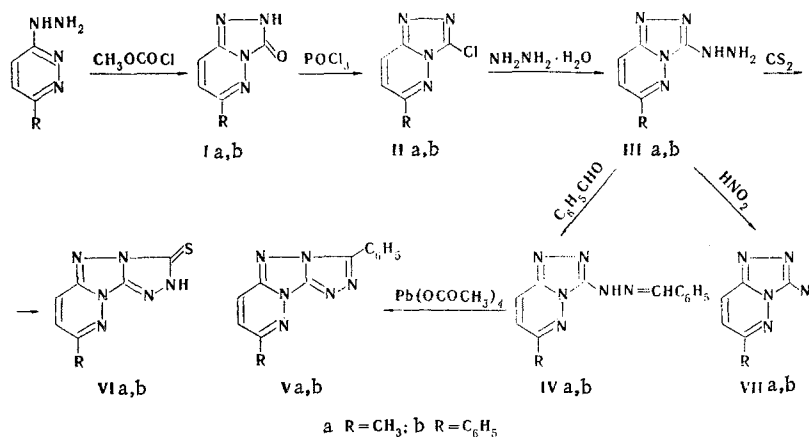
NEW THREE-RING SYSTEMS CONTAINING A PYRIDAZINE RING

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The appearance of a paper [1] devoted to the investigation of sym-triazolo[4,3-b]pyridazine derivatives compelled us to publish some data on the preparation of new three-ring systems based on this heterocyclic compound.

We have synthesized 6-methyl- and 6-phenyl-2,3-dihydro-sym-triazolo[4,3-b]pyridazin-3-ones (Ia,b), from which we obtained the corresponding 3-chloro (IIa,b) and 3-hydrazino (IIIa,b) derivatives.



Oxidation of hydrazones IVa,b gives compounds for which 8-substituted 3-phenyl-asym-triazolo-[3',4' : 5,1]-sym-triazolo[4,3-b]pyridazine structures (Va,b) can be proposed, which follows from the method used to prepare them [1], the results of elementary analysis, and the IR spectra.

TABLE 1. Properties of the Synthesized Compounds

Comp.	R	mp, °C	Empirical formula	Found, %			Calc., %			Yield, %
				C	H	N	C	H	N	
Ia	CH ₃	283—285	C ₆ H ₆ N ₄ O	47,8	4,2	37,6	48,0	4,0	37,3	62
Ib	C ₆ H ₅	255—257	C ₁₁ H ₈ N ₄ O	61,8	4,0	26,5	62,3	3,8	26,4	70
IIa	CH ₃	127—128	C ₆ H ₅ N ₄ Cl	43,0	3,1	34,1	42,8	3,0	33,2	61
IIb	C ₆ H ₅	196—197	C ₁₁ H ₇ N ₄ Cl	57,7	3,0	24,3	57,3	3,0	24,3	67
IIIa	CH ₃	186—187	C ₆ H ₈ N ₆ ·H ₂ O	39,7	5,9	46,0	39,8	5,8	46,1	59
IVa	CH ₃	267—269	C ₁₃ H ₁₂ N ₆	62,1	4,9	33,3	61,9	4,8	33,3	75
IVb	C ₆ H ₅	240—242	C ₁₈ H ₁₄ N ₆	68,7	4,5	26,8	68,8	4,5	26,7	72
Va	CH ₃	273—275	C ₁₃ H ₁₀ N ₆	62,0	4,1	34,0	62,4	4,0	33,6	50
Vb	C ₆ H ₅	323—325	C ₁₈ H ₁₂ N ₆	69,5	3,9	27,2	69,2	3,9	26,9	52
VIa	CH ₃	202—204	C ₇ H ₆ N ₆ S*	40,6	3,2	40,4	40,8	2,9	40,8	38
VIb	C ₆ H ₅	214—216	C ₁₂ H ₈ N ₆ S†	53,6	3,1	31,3	53,7	3,0	31,2	63
VIIa	CH ₃	122—123	C ₆ H ₈ N ₇	41,2	3,0	57,1	41,1	2,9	56,0	87
VIIb	C ₆ H ₅	149—150	C ₁₁ H ₇ N ₇	55,5	3,1	41,5	55,7	3,0	41,3	85

* Found: S 15.4%. Calculated: S 15.6%.

† Found: S 11.9%. Calculated: S 12.0%.

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Compounds to which 8-substituted 2,3-dihydro-asym-triazolo[3',4':5,1]-sym-triazolo[4,3-b]pyridazine-8-thione structures (VIa,b) can be assigned were obtained as a result of the reaction of IIIa,b with carbon disulfide.

Diazotization of IIIa,b gives 6-substituted 3-azido-sym-triazolo[4,3-b]pyridazines (VIIa,b) (ν_{N_3} 2140-2160 cm^{-1}), which readily decompose with the evolution of nitrogen when aqueous solutions of them are heated.

LITERATURE CITED

1. P. Francavilla and F. Lauria, *J. Heterocycl. Chem.*, **8**, 415 (1971).