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Synthesis of new heterocyclic system: [1,2,4]triazolo[3',4':6,1]pyridazino [4,3-*e*][1,3,4] thiadiazine

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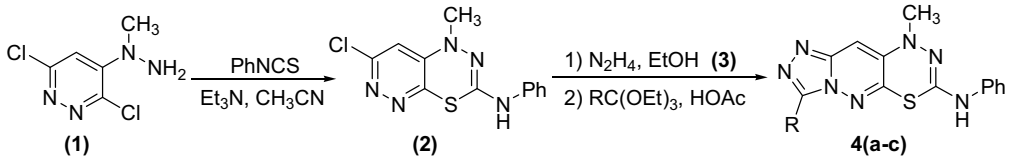
Triazoles, in particular fused 1,2,4-triazoles, are an important class of heterocyclic compounds which express antifungal [1] and bactericidal [2] activities. On the other hand, pyridazinothiadiazines are also important heterocycles which are of interest as potential inhibitors of cyclic nucleotide phosphodiesterase [3] and dyestuff [4]. Therefore, the synthesis of triazolopyridazinothiadiazines should be interesting from pharmacological and synthetic point of views.

We here now describe a method for the synthesis of novel heterocyclic ring system of 1,2,4-teriazoles fused to pyridazino[4,3-e][1,3,4]thiadiazine. Initially, the treatment of compound **(1)** with phenylisothiocyanate afforded the 2-anilino-7-chloro-1-methyl-1H-pyridazino[4,3-*e*][1,3,4]thiadiazine **(2)**. The reaction of precursor **(2)** with hydrazine hydrate in ethanol led to the substitution of chlorine atom with hydrazine and gave the corresponding 2-anilino-7-hydrazinyl-1-methyl-1H-pyridazino[4,3-*e*][1,3,4]thiadiazine **(3)**. The latter product subsequently underwent cyclocondensation with different triethylorthoesters in acetic acid to give the desired tricyclic heterocyclic compounds [1,2,4]triazolo[3',4':6,1]pyridazino[4,3-*e*][1,3,4] thiadiazine **(4a-c)** in good to excellent yields.



(1) **(2)** **4(a-c)**

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