Synthesis of Pyrimidine, Thiazolopyrimidine, Pyrimidotriazine and Triazolopyrimidine Derivatives and their Biological Evaluation

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Z. Naturforsch. **54b,** 788–798 (1999); received February 2, 1999

Thiazolopyrimidines, Pyrimidotriazines, 2-Pyrazolopyrimidines, Triazolopyrimidines, Ethyl Benzoylacetate, Pyrimidin-4-one-2-thione

Pyrimidin-4-one-2-thione (**3**) was synthesized *via* the reaction of thiourea (**1**) with ethyl benzoylacetate (**2**) and was taken as a starting material for the present study *via* its reactions with the halogen-containing reagents **6**a-d and **10**a-c to give the corresponding thiazolopyrimidines **8**, **9** and **12a-c**. The 2-hydrazino derivatives **5** were synthesized either *via* the reaction of **3** or **4** with hydrazine hydrate. Compound **5** reacted with **6a-c** and **10a-c** to give the corresponding pyrimidotriazines **17a-c** and **19** respectively. Also, compound **5** reacted with the active methylene-containing reagents **13** and **2a,b** to give the corresponding 2-pyrazolopyrimidines **15** and **22a,b** respectively. On the other hand, the triazolopyrimidines **21a,b** and **30a,b** were also obtained *via* the reaction of **5** with each of formic acid, acetic anhydride, ethyl chloroformate and carbon disulfide respectively. Some of the newly synthesized heterocyclic derivatives were tested for their biological activity.

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