Synthesis of Various Gewald's Amides and Their Reactions with Aromatic Aldehydes.

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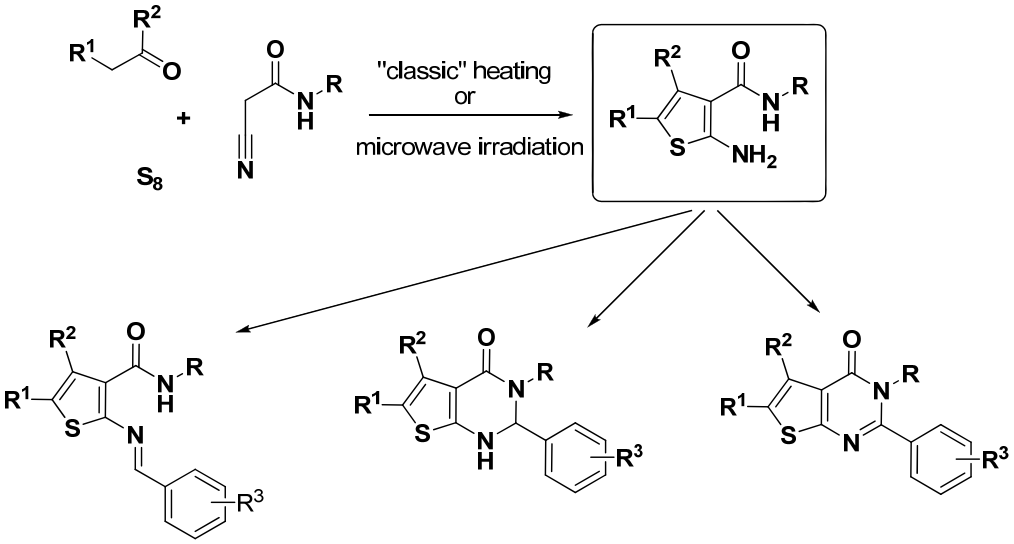
In the 1960s *Karl Gewald* developed an excellent synthetic methodology for the synthesis of a variety of highly-substituted 2-aminothiophenes. Since then this one-pot three-component reaction has attracted considerable attention that could be illustrated by numerous research articles and topical reviews. There is a lot of literature demonstrating the great synthetic potential of these adducts as precursors in the synthesis of diverse biological active compounds, containing the thiophene moiety. Among all improvements that can be made in the Gewald reaction we would like to emphasize a microwave activation usually allowing to decrease the reaction time significantly and to improve yields of desired products.



In this work we have studied the synthesis of diverse 2-amino-thiophene-3-carboxamides (Gewald's amides) under the "classic" conventional heating and the microwave irradiation. It was shown that in the case of N-substituted 2-cyanoacetamides the reaction had to be carried out under special conditions, and optimized methodology was developed.

The vicinal amino-amides obtained via the Gewald protocol paid our attention as 1,5-binucleophiles and their reactivity in the reactions with aromatic aldehydes was studied. An opportunity of the synthesis of all three possible products from the reaction was shown.