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GREEN SYNTHESIS OF THIOBENZAMIDE DERIVATIVES BY WILLGERODT KINDLER REACTIONS IN ACIDIC CATALYSIS WITH MONTMORILLONITE K-10

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The development of synthetic approaches that meet the principles of green chemistry for the synthesis of molecules biological interests is one of the current quests. Among these molecules, we have the thioamides. The Willgerodt-Kindler (WK) reaction is one of the most widely used synthetic methods for accessing thioamides. The purpose of our work is to study this reaction in acid heterogeneous catalysis with montmorillonite K-10 under microwave activation for the synthesis of phenyl derivatives (morpholino) methanethiones. Our work shows that the mixture (aldehyde, sulfur, morpholine and K-10) is not only suitable, but optimizes the reaction. K-10 was easily separated from the reaction mixture and was recycled at least two times without any loss of activity. Operational simplicity, short reaction

times, excellent yields and benign environmental conditions are also the advantages of this protocol, thus respecting the principles of green chemistry. In summary the synthesis of thiobenzamides in heterogeneous acid catalysis with the K-10 of the Willgerodt-Kindler reaction for carbonyl compounds is a simple, efficient protocol that respects the principles of green chemistry. The structures of thioamides synthesized were characterized and confirmed by high-resolution mass spectrometry (HRMS) and nuclear magnetic resonance (NMR) 1D and 2D (COSY, HSQC, HMBC).

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