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Zinc Perchlorate Hexahydrate Catalyzed Mono- and Bis-Transesterification of Malonic Esters

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Abstract: Commercially available zinc perchlorate hexahydrate [$Zn(ClO_4)_2.6H_2O$] was found to be a highly effective catalyst for the transesterification of malonic esters with alcohols. The treatment of methyl-, ethyl-, or α-substituted malonic esters with primary or secondary alcohols in the presence of a catalytic amount of zinc perchlorate results in good to high yields of the corresponding esters (68%-99%). Mono-transesterification products are also obtained in moderate to good yields (22%-42%). The reaction was also carried out with 2-mono- and di-substituted malonic esters, and in the case of 2-mono- and di-substituted malonic esters, the reaction time is, in some cases, shorter, in which the yields are comparable with unsubstituted derivatives. The cyanomethyl and bis-cyanomethyl malonic ester derivatives are also used for transesterification and the corresponding products are obtained in high yields. No reaction occurs with the CN group during the reaction.

Key Words: Transesterification, zinc perchlorate, malonic esters, mono-substituted malonic esters, unsymmetrical malonic esters

Keywords
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