

MICROWAVE-INDUCED STEREOSPECIFIC SYNTHESIS OF OPTICALLY ACTIVE β -LACTAMS IN DIFFERENT SOLVENTS: EFFECTS ON THE CONVERSION OF ELECTROMAGNETIC ENERGY INTO HEAT ENERGY

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Abstract. This article describes the effect of $\tan\delta$ values of the solvents in the stereospecific synthesis of optically active cis β -lactams under diverse microwave-induced conditions. The effects of low $\tan\delta$ values of the solvents are found to be more crucial than solvents with high dipole moments and dielectric constants. Despite significant progress of microwave-induced reactions, no reports have examined the $\tan\delta$ values of the solvents in reactions conducted in a microwave. In this study, the synthesis of hydroxy- β -lactams under microwave irradiation with diverse solvents was considered by focusing on their $\tan\delta$ values. The study indicated that for the synthesis of β -lactams solvents with low $\tan\delta$ and high dipole moment and high dielectric constant are necessary.

Keywords: β -lactam, loss tangent, microwave, stereospecific, optically active.