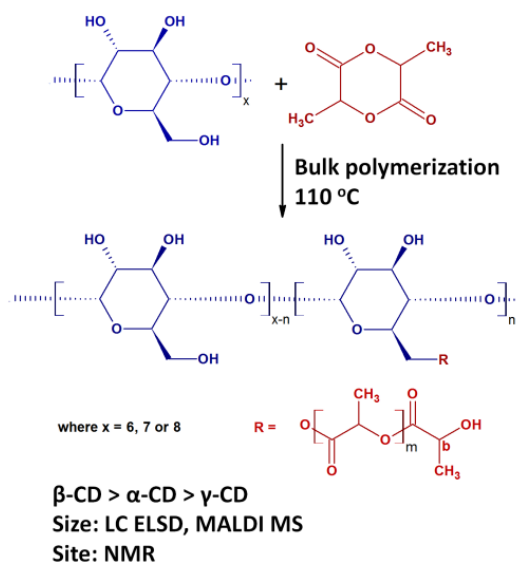


# RING OPENING OF CYCLIC ESTERS IN THE PRESENCE OF CYCLODEXTRINS – A MASS SPECTROMETRY STUDY

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Cyclodextrins (CDs) were used in a green chemistry approach for the ring opening (RO) of cyclic esters. Thus, CDs perform a dual role, to activate and to initiate, respectively, the RO reaction [1]. The practical importance of such reactions may be



increasingly important but, so far, only the oligolactide modified CDs were used for enhanced drug complexation [2]. Nevertheless, understanding of the intimate structure of the CDs derivatives resulted from such reactions represent a key step in uncovering the intimate mechanisms behind the RO of cyclic esters in presence of CDs. The pioneering studies proposed that the RO reaction, in bulk, results in the formation of CDs derivatives having a single chain attached in spite of the multitude of OH groups present on CD molecule. Also, it was claimed that a selective substitution of CDs

takes place on the larger rim, at C2. Being given the complexity of the mixtures resulted from such reactions, we considered useful to have a closer look into the chemical nature of the resulted products using thorough characterization techniques like MALDI and ESI mass spectrometry, liquid chromatography and NMR [3-6]. The analyzed compounds are CDs modified with oligoesters obtained through RO reactions of  $\beta$ -butyrolactone or L-lactide. Our results, here highlighted for the CD-lactide derivatives, support the multiple site substitution on the smaller rim of CD.

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