MAGNESIUM DRUG COMPLEXES: EFFICIENT INITIATORS FOR FORMATION OF POLYPACTIDE-DRUG CONJUGATES

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ABSTRACT

Over the past few decades, the use of polymers as carriers of both covalently bound and physically entrapped drug molecules has been widely explored. When the drug is attached to a polymeric carrier, it is essential that the original structure of the drug used does not change. The aim of such a strategy is better control of dosage and prolongation of drug activity. The conjugation of polylactide (PLA) with selected drugs could be one of strategies aimed at improving or modifying biopharmaceutical properties of some drugs. The ring-opening polymerization (ROP) of cyclic monomers for the preparation of polyesters, such as polylactide (PLA), which is used in this study, has been investigated extensively. The process in the presence of metal-alkoxides (M-OR) is thought to occur via a coordination-insertion mechanism, whereby the metal center serves to activate the carbonyl group of the incoming lactide (LA) molecules toward attack by the metal M-OR alkoxide group followed by insertion of an LA molecule unit into the metal-alkoxide bond with cleavage of the acyl-oxygen bond of the monomer.

We chose for our study the drug pridinolum (PriOH = 1.1-diphenyl-3-(1-piperidinyl)-1-propanol) used as a muscle contractions agent and in the treatment of Parkinson's disease. Here we report the use of pridinolum magnesium compounds together with ROH (R = ^{i}Pr, Bn) as initiators for the ROP of LA.