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研究论文

酰基侧链对O--酰化壳寡糖/聚乳酸共混膜氢键的影响

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摘要: 以氯仿为共溶剂, 用流延成膜法制备了不同酰基侧链O--酰化壳寡糖/聚乳酸(OCS/PLLA)共混膜, 用FTIR、WAXD、DSC和TG等方法表征了共混膜中的氢键作用。结果表明, OCS/PLLA共混膜组分间存在较强的氢键相互作用, 主要发生在O--酰化壳寡糖的氨基和聚乳酸的羰基之间; 在保证脂溶性的前提下, 酰基侧链越短, O--酰化壳寡糖与聚乳酸之间的氢键作用越强, 组分间的相容性越好。

关键词: 有机高分子材料 O--酰化壳寡糖 聚乳酸 共混膜 氢键 相容性

The Effect of Acyl Sidechain on the Hydrogen Bonds in O－acylated Oligochitosan/PLLA Blend Films

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Abstract: Three kinds of O-acylated oligochitosans/poly (L-lactic acid) (OCS/PLLA) blend films were prepared by solution-casting approach using CHCl3, the hydrogen-bond interaction between OCS and PLLA were characterized by FTIR, WAXD, DSC and TG techniques. The results show that there are strong hydrogen-bond interactions in the OCS/PLLA blend films, and the interactions mainly appeare between the amine group of OCS and the carbonyl group of PLLA. The length of acyl sidechain of oligochitosan affects the hydrogen-bond interaction greatly, and the miscibility of the blend films. The shorter sidechains, the stronger hydrogen-bond interaction, as well as the better compatible of the OCS/PLLA blend films.

Keywords: organic polymer materials O-acylated oligochitosan PLLA blend film hydrogen bond miscibility

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