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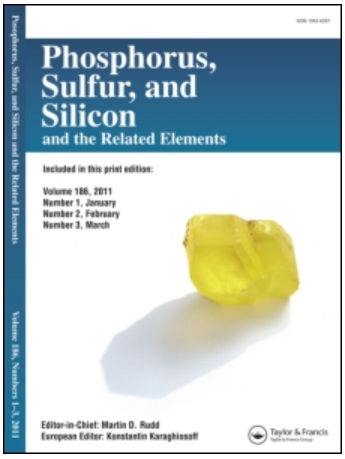

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Synthesis and In Vitro Drug Release Behavior of Unsaturated Polyphosphoester Used as an Injectable Bone Repair Material

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Synthesis and In Vitro Drug Release Behavior of Unsaturated Polyphosphoester Used as an Injectable Bone Repair Material

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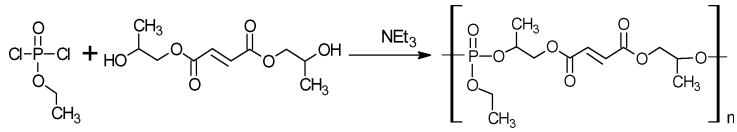
Keywords Bone repair material; polyphosphoesten drug release

Polyphosphoester is a kind of biodegradable polymer with excellent biocompatibility.[1] A novel unsaturated polyphosphoester(UPPE) containing double bond in repeat units was first synthesized from bis(1,2-propylene glycol)fumarate and ethyl dichlorophosphater by condensation polymerization reaction (Scheme 1).[2] Structure of the polymer was characterized by FT-IR and NMR(^{1}H, ^{13}C, ^{31}P).



SCHEME 1 Synthesis of unsaturated polyphosphoester.

UPPE could crosslinked *in situ* with vinyl monomer such as *N*-vinyl pyrrolidone (NVP),[3] which could be used as an injectable bone tissue engineering scaffolds material. *In vitro* drug releases behavior of the crosslinking system of UPPE/NVP with different contents of ciprofloxacin and different UPPE/NVP ratios was investigated in phosphate buffer solution (pH = 7.4). The results indicated that the sample

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with less ciprofloxacin released more rapidly when the UPPE/NVP ratio was kept at a constant value, and with higher NVP/UPPE ratio released more rapidly when the content of ciprofloxacin was kept at a constant value.

REFERENCES

[1] K. W. Leong, H. Q. Mao, R. X. Zhuo, *Chin. J. Polym. Sci.*, **13,** 289 (1995).
[2] J. J. Qiu, C. M. Liu, F. Hu, et al., *J. Appl. Polym. Sci.*, **102,** 3095 (2006).
[3] J. J. Qiu, C. M. Liu, X. D. Guo, et al., *Polym. Mater. Sci. Eng.*, **22,** 195 (2006).

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