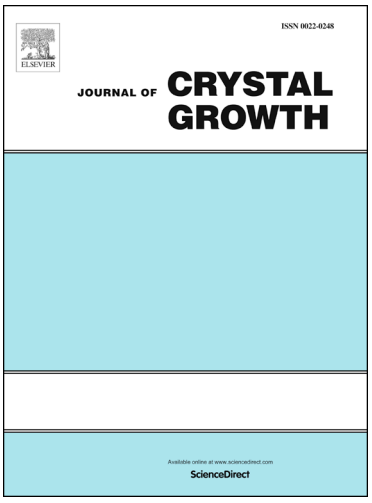

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Anticalcification potential of heparin on hydroxyapatite seeds using a constant composition *in vitro* model

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Highlights

- Heparin is a strongly potent inhibitor for HAP crystals under physiological conditions.
- The inhibitory effect is linear proportion till certain concentration, and plateau is reached.
- The inhibitory heparin mechanism is attributed to the blocking of active sites on HAP seeds

Abstract

Calcification is among the principal causes of biological heart valve substitute failure. Glycosaminoglcans (GAGs) are negatively charged molecules, possessing anticoagulation and anti-inflammatory activity that make them a potential solution against calcification. In the present work, the anticalcification potential of heparin was investigated under constant supersaturation conditions with respect to hydroxyapatite ($Ca_5(PO_4)_3OH$; HAP). Heparin concentration in the supersaturated solutions was in the range between 0.25-3 ppm, at pH 7.40 and 37°C. Heparin showed inhibitory