



INSTITUTE FOR CELLULAR ENGINEERING

Effects of Biological Storage Conditions on Alginate Mechanical Properties

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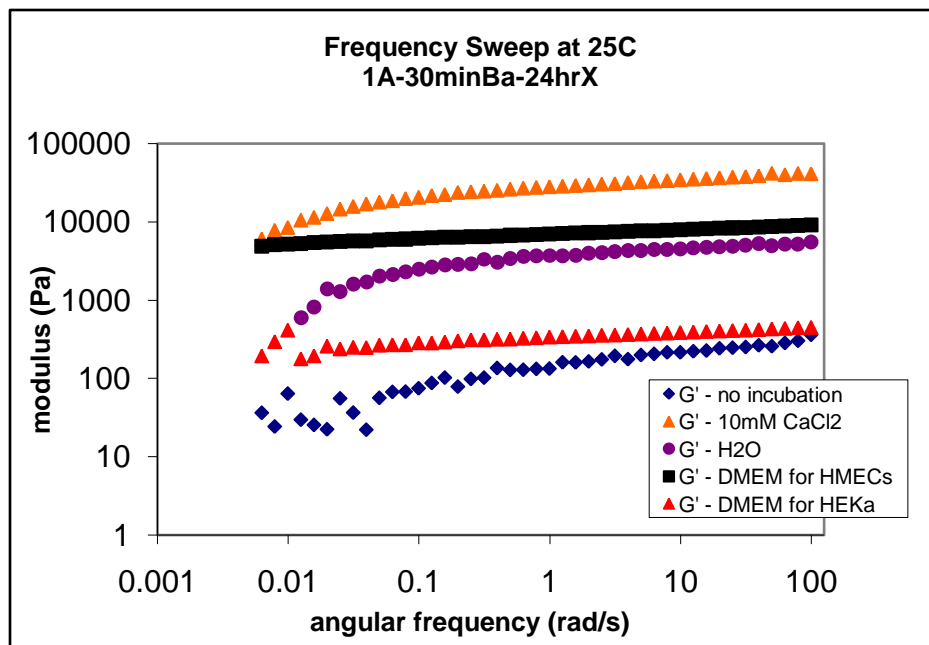


Figure 1: Storage modulus vs. angular frequency for 1% alginate gels incubated in various solutions for 24 hours. Incubation conditions were 37°C, 5% CO₂.

Alginate is a popular cell encapsulation matrix because it is biodegradable and biocompatible. However, biological storage conditions affect a gel's mechanical properties, which in turn affect its behavior in encapsulation applications.

Our results assess the effects of short-term storage in two types of biological media (formulated for human mammary cells and human keratinocytes) on an alginate gel's mechanical integrity. For short-term incubations (<24 hours), gels in either media type exhibit an increased storage modulus. However, for longer incubations, or for gels crosslinked with Ca²⁺, media exposure results in degradation.