Composite Gels from Health to Marine

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A composite is a mixture of two or more different materials produce a product which has different properties than its constituents. There are many polymer composite systems, including biopolymer, hydrogel, and nanoparticles. Three dimensional networks can be hydrophilic and/or hygroscopic where gelation, drying, swelling, and elasticity of these materials enclosed many fields from Health to Marine. In the terms of health, cornea can be viewed as an optically clear hydrogel [1]. Keratoconus is a degenerative disorder of the eye in which structural changes within the cornea [2]. Therefore, it is important to know the properties of the elasticity of cornea [3] which was investigated with various solutions including salt and glucose, respectively. The solutions were studied for keratoconus treatment alternatively. The elasticity of the treated and untreated cornea was characterized by using compressive technique. The observed elasticity properties are consistent with the suggested values in the literature. The study is one of the alternative solutions studies for the treatment of corneal deformation illness after our spectroscopic and mechanical investigations. With regards to marine, hydrogels exhibit excellent antifouling (AF) activities without toxicity, they can as coating materials to produce in offensive AF surfaces. Moreover, hydrogels generally exhibit low friction. Therefore, they can be employed of submerged surfaces where low friction is required such as ships' hulls and power plant cooling water intake channels [4]. Thus, the antifouling properties against barnacles of composite gels with different chemical composition, swelling, drying and elasticity of composite gels as AF were tested in laboratory and marine environment [5].

References

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