

Evaluation of wetting and dewetting properties of biocompatible thin films

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Polyelectrolyte multilayer films were prepared using polysaccharides as materials to elucidate the wetting properties of the thin films. Glycogen was successfully assembled into multilayer films using poly (ethyleneimine) (PEI) as a counterpart of the alternating deposition, probably through hydrogen bonding as driving force. On the other hand, anionic polysaccharides including dextran sulfate (SD), chondroitin sulfuric acid (SC), alginic acid (Alg), and sulfonated α - and β -cyclodextrins (α -SCD and β -SCD) can be assembled into thin films using PEI as a cationic component of the films. The kinetics of evaporation of water from the swelled films was studied using quartz crystal microbalance (QCM). The kinetics are composed of an initial fast evaporation and consecutive slow process. Thus, it is speculated that water is entrapped in the two different kinds of environment in the films.