



## **Polymer design of naturally-derived cellulosic polymer for emulsion stabilization**

In this presentation, we will elucidate the process of designing a novel linear cellulosic polymer capable of stabilizing emulsions. Factors like molecular weight, degree of substitution and type of substituent and how they relate to stability of emulsions and rheological properties will be explained.

Several substituents were reacted to the cellulosic backbone and evaluated for their ability to suspend and give yield to a simple gel. It was noted that substituents like Hydroxyethyl, Hydroxypropyl and hydroxypropylmethyl did not yield polymers with suspension capabilities. On the other hand, carboxymethyl substituents did give yield to the gels and were able to suspend in certain configuration of the polymer. Factors like degree of substitution on the backbone were of paramount effect on the ability of the polymer to suspend. These changes, along with additional controls on molecular weight distribution allowed us to design a linear polymer that can suspend particles and stabilize emulsions.