

## **Bakteriell cellulosa**

### *Framtidens naturliga materialval*

#### **Abstract**

Recently several studies have shown that the cellulose produced by bacteria has the potential to become a natural material choice. The fermented health drink kombucha might store our future. Kombucha consists of tea, sugar, water and a symbiotic culture of bacteria and yeast, where some bacteria have the ability to produce bacterial cellulose (BC). This material may be applied for medical purposes as well as in the design- and textile industry.

Climate change and environmental destruction have a major impact on the future of Earth. Since water requiring materials, and materials based on fossil fuels no longer is an alternative, a discourse about new environmentally friendly material, such as BC, is one step closer to a sustainable future. BC is a natural, strong, waterabsorbing and biologically degradable material. When BC grown from kombucha is dried it's called kombucha leather.

This project focuses on increasing the understanding of BC, its properties and production. In all experiments a startculture of unflavoured and unpasteurized kombucha has been used. The study's main purpose is to examine how the nutrition supply of sugar and tea affects the growth of BC. Thus BC was being grown with various concentrations of the carbon- and nitrogen source. The growth was estimated and documented weekly. Furthermore, several methods to treat the dried material of BC were investigated, such as coconut oil, olive oil and glycerol.

The study shows that a reliable carbon source is the most important factor for BC-growth. However, too much tea tends to result in a decreased cellulose production. The alcohol

glycerol has the right properties to function as an emollient. With time more and more is revealed about this sustainable material. A material that is our hope for a clean and green material industry.