

Title: Wearing the Celluloses from Nature

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Keywords: Textile innovation, Sustainability, New technologies

Body measurement of the model/mannequin who wear the outfit:

Chest: 96.5cm

Waist: 84cm

Hip: 99cm

Neck size: 39cm

Across shoulder: 46cm

Design Statement:

Nature has always been an inspiration library in the fashion industry. Natural environment has provided tremendously resources and inspiration for the innovative technology in different industries. Inspired by the sustainability, the green movement is developing in different industries to survive from the potentially catastrophic environmental impacts. Material is one of the fundamental elements in fashion. An eco-friendly textile material rises the sustainable value of an eco-fashion design. Exploring an innovative method to develop a new sustainable material creates a new approach in sustainable fashion.

Besides the conventional plant cellulose likes cotton, linen and ramie, there are other organisms like bacteria, fungi, and algae, capable to produce natural cellulose (Bielecki, Krystynowicz, & Turkiewicz, 2002). This type of cellulose is called bacterial cellulose. It is a kind of leather-like sustainable textile material from nature. It is formed on the air-liquid contact surface of a symbiotic culture of bacteria and yeast with sugary tea or coconut water (Dufresne & Farnworth, 1999). Its cultivation method is sustainable which does not require any chemical- and energy-intensive process. In addition to its sustainable cultivation, bacterial cellulose is biodegradable and causes no harm to the environment and human when it comes to the end of its lifecycle.

This experimental menswear design that combined different kinds of natural cellulose textiles demonstrates a future approach to the usage of natural sustainable resources. A bacterial cellulose short sleeve shirt and linen short pants with bacterial cellulose patched pockets are executed to provide the idea combining the conventional natural plant cellulose with newly developed bacterial cellulose in the design. The collar and top sleeve part of this bacterial cellulose shirt were grown using tailor-shaped cultivation, which is a zero-waste design practice for the bacterial cellulose cultivation invented by the designer. The "*Wearing the cellulose from Nature*" brings an inventive design piece with zero waste cultivation approach and contemporary cutting which show the practicability of bacterial cellulose to perform as a wearable garment. This short-sleeve shirt is designed to have a raglan top sleeve and normal armhole junction in the underarm. The square shirt collar requires fusing of different thicknesses of interlining in the collar and collar stand; turning the collar corners, hand stitching around the collar and attaching the collar to the neckline. This shirt shows how bacterial cellulose could perform in conventional garments making technique and compare the visual outcome with the linen short pants. Bacterial cellulose can simulate thin sheep leather, which possesses skin wrinkles and leathery texture after

applying the organic leather dye manually. The shirt also shows how bacterial cellulose provides leather-like appearance and potentially become an alternative to substitute the application of sheepskin or calfskin in the future. The designer uses the following recipe to grow a piece of bacterial cellulose panel from a symbiotic culture, in a specially designed cultivation container at a room temperature of 25-30°C, 1:7:1 sucrose, tea and bacteria solution proportion and an active bacterial cellulose scoby (Symbiotic Colony of Bacteria and Yeast) as the cultivation source.

Bielecki, S., Krystynowicz, A., & Turkiewicz, M. (2002). Bacterial cellulose. Bio polymers. *Polysaccharides I: Polysaccharides from Prokaryotes*, 5, 37-90.

Dufresne, C., & Farnworth, E. (1999). Tea, Kombucha, and health: a review. *Food Research International*, 33 (2000), 409-421.

