



The shoes were developed with funding and assistance from incubator One x One | Photo source One x One

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FASHION BRAND GROWS ITS OWN TRAINERS FROM MICROBES

 FASHION & BEAUTY

A fashion brand and a scientist have collaborated on trainers that use a leather alternative grown from microbes

Spotted: Fashion brand Public School New York (PSNY) and Fashion Institute of Technology professor, Dr Theanne Schiros, have developed a trainer that uses a leather alternative, grown from microbes. The upper, midsole and laces were fashioned from a microbial bio-leather originally created by researchers from Columbia University's Materials Research Science and Engineering Centre.

The bio-leather consists of a symbiotic culture of bacteria and yeast called a Scoby (yes, the same one used in making kombucha tea). Schiros used waste Scoby from a local kombucha brewery. As part of the fermentation process, the Scoby turns sugars into bacterial nano-cellulose. This has higher elasticity and strength than cellulose which is derived from wood pulp or cotton – making it more hard-wearing, and perfect for trainers.

The nano-cellulose is dried in a mould, into the shape of the shoe, eliminating waste from pattern cutting. The trainers are also dyed using plant extracts, with indigo pigment bound with soy milk, and others derived from the seeds of the myrobalan tree and acacia bark. The shoe's outsole is made from natural cork. When they reach the end of their life, the shoes can be composted, allowing their components to be used as nutrients by other organisms.

Dao-Yi Chow, co-designer of PSNY, [points out](#) that the trainers are more than just a fad for the brand – they are an opportunity to develop new materials. “This idea of being able to experiment at a really small level and figuring out ways to scale it is the bigger opportunity for our industry,” Chow says. “We’ve always been interested in pushing forward and doing things that people weren’t necessarily doing a lot in a big way. That’s really how our brand has been defined — pushing the boundary.”

The PSNY trainers join a growing list of “vegan” alternatives to leather – many of which are made using biologically-derived polymers. Some of the sustainable leather products we have covered include a “leather” made from [waste seafood](#) and coffee grounds and a method for [recycling leather](#) that produces a product that is stronger and softer.

Written By: Lisa Magloff

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Takeaway:

According to Schiros, it could be possible to scale up this process for commercial production. She points out that industrial fermentation is already used for many high-value products, from pharmaceuticals to beer, so it makes sense to also use it for clothing. As the lack of sustainability in the fashion industry has received more attention, brands are working to develop new products that eliminate or cut waste. It may not be long before microbes are used to “grow” a wide range of clothing items.