

Polyester could slip on banana peel of green fashion

By Jackie May

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For decades after polyester's invention in the 1940s, there wasn't much exciting innovation in the fibres used in the world's textiles. Until now.



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With the increased urgency about humanity's impact on the planet, the race is on to find solutions to reduce the environmental impact of clothing. That's why fabrics will soon be made of pineapple and banana, and silk and leathers will be grown in a laboratory.

The fashion industry is commonly accused of being the second-biggest polluter of the planet, second only to the oil industry. According to the documentary *The True Cost*, humans consume 80-billion pieces of clothing annually. With the advent of fast fashion - the quick delivery of new clothing trends to retail outlets - the production of clothes has doubled in the past 15 years, and will continue to grow rapidly if business-as-usual continues.



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This means continued growth in the production of polyester. The world's most commonly used textile is a plastic-based synthetic fibre made from coal, air, water and petroleum and takes more than 200 years to decompose.

Polyester is also the source of tonnes of plastic microfibres released into the ocean annually and water systems in the course of washing clothes. The Plastic Soup Foundation reports that between 600,000 and 17.7-million microfibres are released into water with every 5kg of washing.

The US nonprofit organisation Orb Media showed recently that billions of people are drinking water contaminated by plastic particles, with 83% of water samples found to be polluted.

Polyester is not the only problem fabric. Cotton requires huge quantities of water and pesticides to produce. Rayon and viscose, other much-loved natural fabrics, are manufactured from tree fibres and unless sustainably sourced, these fibres can come from wood logged in ancient and endangered forests.

The Ellen MacArthur Foundation in Britain argues in a report released in November that "clothes must be designed differently, worn for longer and recycled as much as possible to stop the global fashion industry [from] consuming a quarter of the world's annual carbon budget by 2050".

It sounds daunting, but the strides made in the renewable energy industry making clean energy an affordable and effective alternative to coal, show that cleaning up the clothing and fashion industry with new fibres, technologies and manufacturing techniques, is not a pipe dream. The work has begun.

There have been three areas of innovation during the imagining and creation of a cleaner textile industry: finding more efficient and cleaner ways to recycle and upcycle clothes; creating better ways of growing and manufacturing natural fibres; and inventing new synthetic fabrics.



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Clothing from high-income countries are recycled in SA. In the area around Park Station in Johannesburg's city centre, people sift through large bins of used clothes, selecting items to sell in their microbusinesses.

Planet Aid, a British nonprofit engaged in recycling, says the average American throws away about 30kg of clothing a year. *The Guardian* has reported that "351-million kilograms of clothes (equivalent to 2.9-billion T-shirts) are traded annually from Britain alone".

Planet Aid takes the view that the trading of these clothes across the world creates jobs and provides a source of affordable clothing. But it has also been argued that selling used clothes from the West to developing countries creates a relationship of dependency and an obstacle to Africa developing a clothing and textile industry.

Compounding these concerns is the problem that the clothes will eventually run out of usability and end up in landfills leaking toxic chemicals into the soil somewhere, out of sight of the West. Or they end up in incinerators, polluting the planet's atmosphere.

But by using new technology, it may be possible to give new life to old clothes and simultaneously overcome some of the issues related to the second-hand clothing trade.

Some companies - such as H&M, Levi Strauss and Patagonia - are pulping old clothes and returning the recovered fibres to the fabric supply chain rather than dumping them in a landfill.

In 2016, the H&M Foundation teamed up with the Hong Kong Research Institute of Textiles and Apparel to find a sustainable process for separating and recycling polyester and cotton blends. "This fibre-to-fibre recycling method," it says, "is cost-effective, and there's no secondary pollution to the environment, ensuring the life of the recycled material is prolonged in a sustainable way."

Seattle-based [Evrrnu worked with Levi Strauss](#) to create jeans from discarded cotton with "98% less water than it takes to make traditional cotton fibre and with 90% reduced CO emissions compared to polyester production".

Also in the recycling category is the well-publicised G-Star Raw collaboration with Pharrell Williams's company, Bionic, producing [denim made from plastic waste](#) recovered from the ocean.

Issey Miyake in Japan has been working with recycled polyethylene terephthalate thread for years. His label 132 5, launched in 2010, produces clothes using only recycled polyethylene terephthalate, the clear nontoxic plastic used in water and cold drink bottles. Big brands such as Adidas, H&M and Nike have also been working with recycled plastic.

Many natural fibres are being explored and promoted. In SA, Tony Budden at Hemporium advocates multiple uses of the strong, versatile and (a bonus) antibacterial hemp. Because growing hemp is still illegal in SA, it is imported - mostly from China - and its use is limited.

Other plants being used to explore new textiles include nettles, bananas and coffee. Some, like lotus plants, have been used for centuries, but the commercial viability of creating fabric for the mass market still needs to be explored.

There are two fabrics created from plant fibre, by Orange Fiber and Piatex. Orange Fiber is an Italian company that developed a fabric by extracting the cellulose from the citrus fibres discarded during industrial processing. Piatex is a soft, versatile and vegan alternative for leather made of fibres that are extracted from pineapple leaves.

Other innovative startups have been growing materials in labs. US start-up Modern Meadows is growing leather out of yeast that has been engineered to produce a collagen that, with some added enzymes, turns into skin.

A Stella McCartney-designed yellow dress on display in New York's Museum of Modern Art was made using fabric grown by US startup Bolt Threads.

After studying spiders' silk, Bolt Threads recreated their thread by mimicking their DNA. On their website, they explain that a "yeast produces silk protein in a liquid form during fermentation - very much like the beer-making process". They insisted

that no spiders had been harmed in the making of their silk - something that would appeal to McCartney, a lifelong vegetarian.

The designer, who in 2017 won the British Fashion Council's Special Recognition Award for Innovation, told Vogue magazine: "If you're lucky enough to have a business on this planet, you have to approach it in this [sustainable] way."

Source: Business Day

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