ACTAsia-The researcher
Team 1
A report on plant based materials

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THE PURPOSE

ACTAsia aims to help Asian cultures evolve into caring societies, promoting kindness, compassion and responsibility for all forms of life in order to rich content to educate and change in Asian societies. As we may notice that, consumers now seriously considerably the environment impact of products because of the evolution environmental awareness. As well as Chinese government also acknowledges that innovative, coordinated, green and shared development which can be essential for China's overall progress.

In a nutshell, ACTAsia would like to have the research and evidence collected on ten vegan plant based alternative materials on environmental sustainability, throughout the process from plant to product and afterlife, considering environmental, human and animal impacts. In other words, making by alternative fur and vegan materials is a new and upcoming area.

It is also a great start point to figure out new materials which have been processed so they are more like to have a deeper level of understanding of the production processes and chance to become mass production and benefit our society and environment among the next generation.

Introduction

• The Purpose
• China's Fur Market
• Recommendations
China's Fur Market

Based on ACTAsia's recent research point out that China is one of the major fur-producing countries and has now become one of the biggest fur-consuming countries in the world, and the numbers are growing.

Most fur sold globally is from farmed animals, with common examples being mink, fox, raccoon dog, rabbit and chinchilla. Millions of animals raised for fur endure tragic lives such as miserable lives in small, wire mesh battery cages and horrifying deaths. Nonetheless, the fur industry is keen to forge links with fashion. The production of fur for fashion can impose significant adverse impacts on both environment and human health, and consumers should be made aware of this.

As a result, nowadays many fashion brands which under increasing pressure to reach environmental targets and appeal to sustainability-minded consumers, are moving away from animal-based materials, such as exotic skins and fur.

This pressure has prompted growth in the materials science space, with Gucci-owner Kering, Hermès, Allbirds and more announcing partnerships with companies promising the next generation of sustainable materials.

Much of this chatter has been focused around leather alternatives, however, as more brands move away from fur, companies may capitalise on demand in the market for options, bio-based or other. Since ACTAsia is running the Fur Free China campaigns many years including breeding, animal capture, containment, slaughter and environmentally damaging production processes. In order to encourages the Chinese public, both the public and government should be aware of this issue. Not only external factors as pervious mentioned but take more awareness to compassionate lifestyle choice and join a fur free life.
This report is intended as a functional guide that is easy to read and straightforward for designers, brands but also for consumers. It is fundamental at this stage that also consumers have the knowledge to know what to buy or at least to have the awareness of what they are buying. The information and data gathered is useful to create a narrative behind materials that can make a difference in the fashion industry but that at the same time can be used for other industries; the exchange between materials used for products that are not strictly from garment production is fundamental to achieve a more sustainable and inclusive future for everyone, human, animals and environment.
DEVELOPMENT

- 10 Materials
- Research Results
- Graphic table
10 Materials

- **Mycelium**
  A branching filamentous structure used by mushrooms to grow. Make it into a new kind of leather.

- **Piñatex**
  Piñatex is an innovative non-woven textile made from waste pineapple leaves, a waste product of the major pineapple farming industry in the Philippines.

- **Nuo and Ligneah**
  As soft as leather and as smooth as fabric which made of real wood, vegan and sustainable. It is surprisingly light and looks very luxurious, can be bent in all directions and is very soft.

- **Leap™**
  Leap™ is a plant-based leather alternative with every quality of traditional leather but more beautiful.

- **Orange Peel**
  Abandoned healthy orange peels.

- **Tomtex**
  A leather alternative made from shell seafood waste and coffee ground waste that can be embossed with a variety of patterns to replicate animal leathers.

- **Tree Leaf**
  Use true leaves combine with leather or fibre.

- **Agar**
  An ingredient commonly found in Asian cuisine, especially desserts, is a high-strength gel mainly extracted from two types of red seaweed.

- **Soybean Protein Fiber**
  A plant based fabric obtained by the isolation of the protein of soybeans. It possesses properties similar to synthetic fibres like moisture absorption and easy fast wash. Other properties include soft and shiny feel and easiness in dyeing the fabric.

- **Wineleather**
  Wineleather is a plant based leather obtained by the waste of wine production, easiness in dyeing the fabric.
The research tackled 10 plant-based materials that thanks to their outstanding properties will be - and are able - to substitute some of the most polluting, toxic and unkind materials that compose most garments’ fabrics. Starting from materials obtained by repurposing organic waste from wine production that produces a leather-like fabric; to materials that become bioplastic, that are plastic-like plant-based materials that carry similar properties to plastic but are mostly made of water so the recyclability and compostability are very easy to obtain. So, trying to find different kinds of materials that would fill the gap of the substitution of the old, dated and destructive ones, these are the plant-based for the future market: Agar, Apple Leap, Mycelium, Nuo/Ligneah, Orange Peel, Pineapple Leap, Soybean Protein Fibre, Tomtex, Tree Leaf and Wineleather. The final research showed how most of these materials have a similar cost to one another, so the competitiveness lays on the properties, social and environmental impact. The most expensive materials were actually Wineleather, that has been used for cars’ interiors but also as a vegan leather option for clothing and accessories; the second most expensive material is Nuo/Ligneah, a material obtained by wood fibres that is smooth like fabric but soft at touch like leather. Other materials like Agar, still have to be experimented in fabric and textile production so cost range is still difficult to count, but it has properties like the fact that it imitates the plastic look and feel without risking to endanger sea-life nor pollute during production, that possesses great perspectives. The chart compares the 10 different materials from different points of view; firstly what it is and where it comes from; then production which is essential to understand the process that gives life to the new or repurposed material; it was important also to include if the fabric had already used in other circumstances; after this the cost is fundamental to understand if it’s economically sustainable to invest in; obviously the waste during production is important to consider; and finally afterlife, to understand what are the environmental consequences after the fashion garment has been thrown away is one of the biggest concerns that should come to mind before producing or buying a garment.
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<th><strong>Age</strong></th>
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<td>Leap™</td>
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<td>A6erlife</td>
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| **Orange Peel** | A plant-based fabric | A6erlife | Zero waste | Already in use for | A6erlife | 4. Finally processed into high-quality veneers. 3. Logs are being cross-cut, milled and stored. 2. Being brought to the veneer sawmill. 1. comes exclusively from sustainable forestry. 2. Being brought to the veneer mill and stored. 3. Logs are being cross-cut, debarked and sanded. 4. Finally processed into high-quality veneers. 5. From single veneer leaves they produce veneer sheets is 2.5 x 2.5m. 6. The spliced veneer sheet is glued to a fabric on its back and then laser-cut. 5. The processed wood comes exclusively from sustainable forestry which is managed ecologically and with respect for the whole landscape. This also means that the origin of wood can be traced at any time. NÜO’s Environmentally friendly and 100% animal-free. NÜO reduces the CO₂ footprint emitted into the atmosphere by about 40% compared to a square metre of water. | "|  |  |

| **Applege Leather** | A plant-based leather alternative with every quality of traditional leather but more sustainable | A6erlife | Zero waste | Already in use for | A6erlife | 4. Finally processed into high-quality veneers. 3. Logs are being cross-cut, milled and stored. 2. Being brought to the veneer sawmill. 1. comes exclusively from sustainable forestry. 2. Being brought to the veneer mill and stored. 3. Logs are being cross-cut, debarked and sanded. 4. Finally processed into high-quality veneers. 5. From single veneer leaves they produce veneer sheets is 2.5 x 2.5m. 6. The spliced veneer sheet is glued to a fabric on its back and then laser-cut. 5. The processed wood comes exclusively from sustainable forestry which is managed ecologically and with respect for the whole landscape. This also means that the origin of wood can be traced at any time. NÜO’s Environmentally friendly and 100% animal-free. NÜO reduces the CO₂ footprint emitted into the atmosphere by about 40% compared to a square metre of water. | "|  |  |

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Illustrations
This report helps people who are environmentally aware to understand the latest sustainable materials transfer into products which can be used and where can be purchased in our daily life in order to purchase in a good and friendly way in our planet. There are some materials which are sophisticated into merchandises and can be processed to different sectors; however, some materials can be limited by cost to further development, because of experimented factors, they are a variety way to make into fabric or textiles.

Educate younger generation in China and encourage global designers and retailers to support the fur-free movement is increasingly important. It's time to take a stance on the critical issues of protecting and caring for the environment. Consumers and retailers should avoid purchasing or selling fur to eliminate China's fur trade. Besides, fashion media has been to follow this trend to report more articles to eliminate fur. In a nutshell, the move comes as fur-free policies are adopted by more and more fashion brands, retailers and publishers, following rising activism on animal cruelty and the environmental impact of rearing animals for their skins.
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