



# ECOLAR

- Start a Fresh Chapter of Healthy Life !

## 益曜科技

- 開啟健康生活新篇章！

# Ecolar Technology Limited

## 益曜科技有限公司

# About US



## **ECOLAR:**

A high-tech enterprise in Hong Kong, jointly incubated by the Hong Kong Polytechnic University and the Hong Kong Science and Technology Park



**Hong Kong Polytechnic University and the Hong Kong Science and Technology Park**



**Protecting environment and human health**



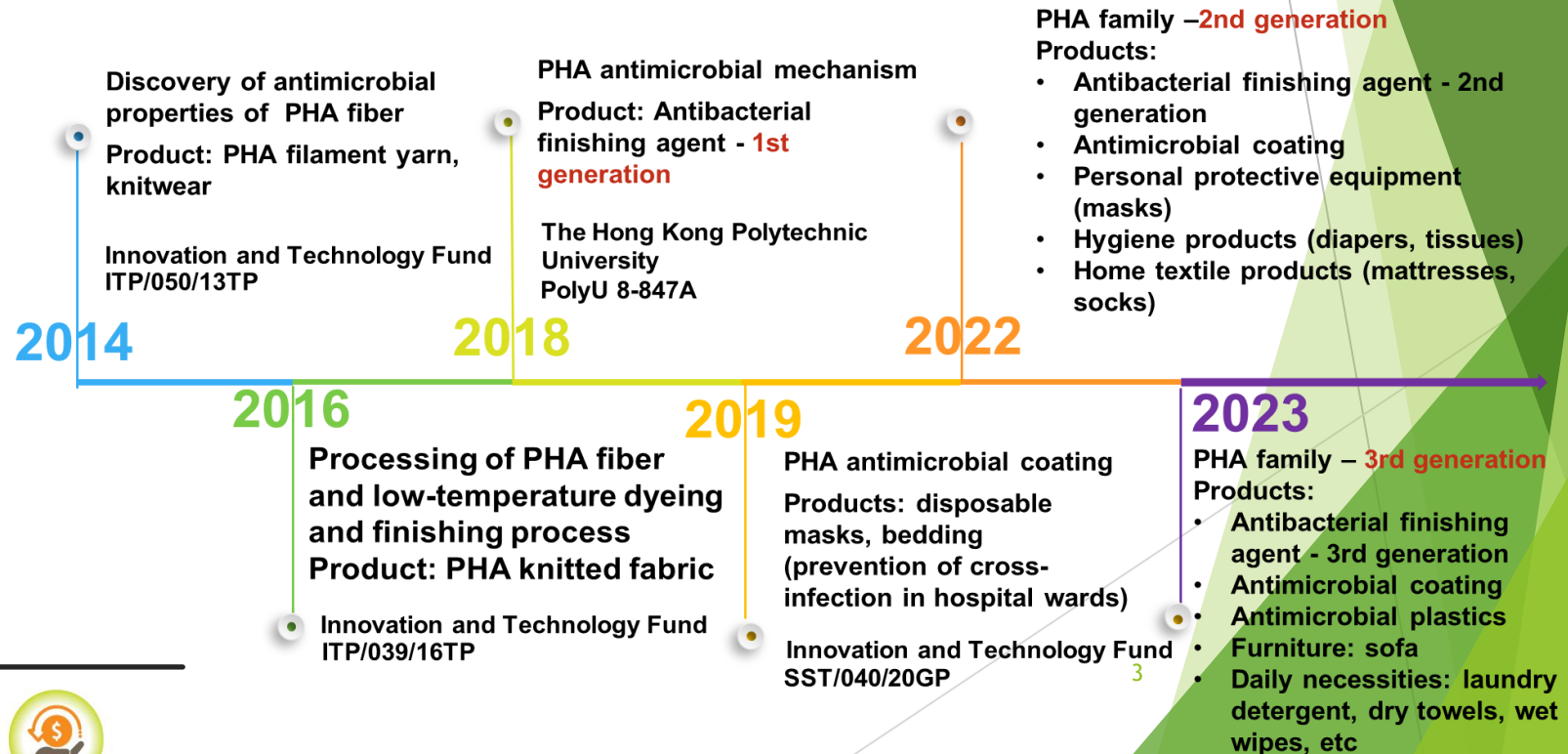
**Credibility, continuous innovation, win-win cooperation**

## **The company's core R&D team and service platforms:**

- Smart Wearable System Research Institute (The Hong Kong Polytechnic University, Hong Kong)
- School of Fashion and Textiles (The Hong Kong Polytechnic University, Hong Kong)
- The Hong Kong Polytechnic University-Jinjiang Technology Innovation Institute (Fujian of China)
- Yinhu Innovation and Entrepreneurship Research Institute, Zhejiang University of Technology, China

# Background and History

- With the global concern about the serious environmental pollution caused by traditional plastics and other difficult to degrade in the natural environment, as well as the increasing problem of microplastic pollution, the development of biodegradable plastics and fiber products has become particularly important. The spread of superbugs and coronavirus has also led to an increasing number of infections and threatened people's health.
- The company created the "BLESSTAR®" and "EVER ECOLAR®" series of eco-friendly biodegradable antibacterial and antiviral products. Main products and services: highly-effective antibacterial and antiviral finishing agent, disinfectant, chips, textile antibacterial finishing and related technical services. Widely used in medical supplies, textile and apparel, home textiles, maternal and childcare, female products, personal protection and other fields.



# PHA Beddings:

**BLESSTAR® EVER ECOLAR®**

**Samples:** bed sheet and pillowcases, and quilt cover.

**Patient ward:** Neurosurgery department and Rehabilitation department

**No. of Subjects:** 50 patients (each group)

**Use Period:** 7 days

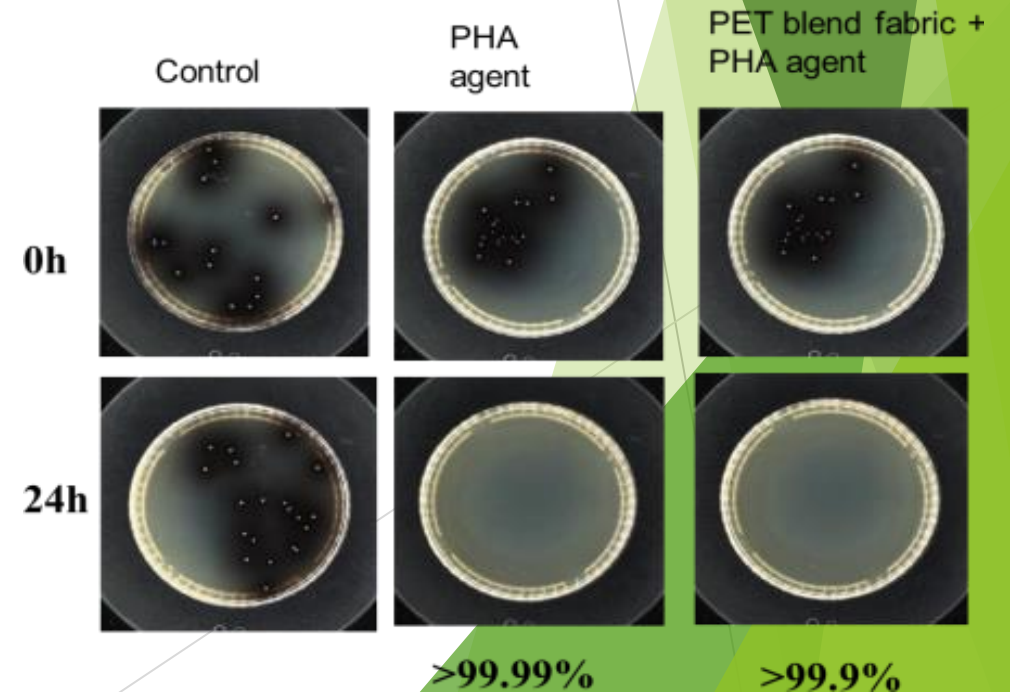
## Methodology and results:

- Microbiological samples were collected for both groups from 100 cm<sup>2</sup> areas of quilt cover, bed sheets, and pillowcases. Swab samples were sent to the hospital's microbiology lab within 30 minutes and tested for the numbers of bacteria (CFU/cm<sup>2</sup>).
- Total viable bacteria counts of antimicrobial textiles can reach or even fall below the “hygienically clean” standard of 20 CFU/100 cm<sup>2</sup> set by the US healthcare textile certification requirement.



**Enterococcus faecalis (EFA) 糞腸球菌**(max in hospital existed)

**Standard: GB15979-2002 standard**





# Washability of PHA Beddings:

1. Beddings still maintain excellent antimicrobial properties after washing 50 times according to the standard of China: FZ/T 73023-2006.
2. Beddings could pass the standard: Oeko tex 100
3. Compared with essential oils (such as menthol + geraniol), we have both cost advantage (only 1/2.5, peppermint oil seems to be 65 Euros / liter) and fastness advantage (we are resistant to washability by 50 times, while the essential oils are not washable)
4. Dosage of BLESSTAR: about 5% on mass of fabric; 15g/m<sup>2</sup>; 0.36 Euro/m<sup>2</sup>. Process: Padding and dry.

**广微测**  
Gmicro Testing

广东省微生物分析检测中心  
GUANGDONG DETECTION CENTER OF MICROBIOLOGY  
分析检测结果  
ANALYSIS AND TEST RESULT

报告编号 (Report No.): 2023FM07880R01

测试结果如下:

测试微生物	标准空白试样 “0”接触时间 的活菌浓度 (cfu/mL)	18h 振荡后 标准空白试样 的活菌浓度 (cfu/mL)	18h 振荡接触后 抗菌织物试样 的活菌浓度 (cfu/mL)	洗后 抑菌率 (%)	标准值 (%)	单项判定
大肠杆菌 ( <i>Escherichia coli</i> ) ATCC 25922	2.5×10 <sup>4</sup>	3.7×10 <sup>4</sup>	4.3×10 <sup>3</sup>	88	≥70	抗菌效果 符合 AAA 级
金黄色葡萄球菌 ( <i>Staphylococcus aureus</i> ) ATCC 6538	2.2×10 <sup>4</sup>	4.4×10 <sup>4</sup>	3.4×10 <sup>4</sup>	99	≥80	抗菌效果 符合 AAA 级
白色念珠菌 ( <i>Candida albicans</i> ) ATCC 10231	1.8×10 <sup>4</sup>	4.6×10 <sup>4</sup>	1.5×10 <sup>4</sup>	97	≥60	抗菌效果 符合 AAA 级

抑菌圈宽度:

菌株名称	抑菌圈宽度(mm)	标准值(mm)	单项判定
大肠杆菌 ( <i>Escherichia coli</i> ) ATCC 25922	0	≤5	符合溶出安全性指标
金黄色葡萄球菌 ( <i>Staphylococcus aureus</i> ) ATCC 6538	0	≤5	符合溶出安全性指标
白色念珠菌 ( <i>Candida albicans</i> ) ATCC 10231	0	≤5	符合溶出安全性指标

(以下空白)

备注  
Remarks

1.样品由检验方水洗 50 次。  
2.溶出安全性项目的样品由检验方水洗 1 次。

# Applications:

**BLESSTAR® EVER ECOLAR®**

## □ Bedding products :

- duvets
- sheets
- fillings
- quilt covers
- mattresses
- pillows



**bedding textiles**



**mattresses**



**public textiles**

## □ Various scenarios :

- hotels
- hospitals
- homes
- public health



**hotel textiles**



**hospital textiles**



**home textiles**



# Awards

- ❑ 2023 Geneva International Exhibition of Inventions - Gold Medal
- ❑ 2023 FITMI - Asia International Innovative Invention Award - Gold Award
- ❑ 2023 Hong Kong 5th Hong Kong Innovation Day - third place
- ❑ 2023 Hang Seng x PolyU Sustainable Future Challenge: Textile & Fashion - 1st Runner Up
- ❑ 2020 Hong Kong Environmental Excellence Awards Excellence Award
- ❑ 2018 R&D 100 Awards - Special Recognition Award (Green Tech) - Bronze Award
- ❑ 2016 Hong Kong Green Innovations Awards - Silver Award





# Contact Us

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