TECH OFFER

Using Natural Products To Improve Skin Microflora For Atopic Dermatitis

KEY INFORMATION

TECHNOLOGY CATEGORY:
Healthcare - Pharmaceuticals & Therapeutics
Personal Care - Cosmetics & Hair
Personal Care - Nutrition & Health Supplements

TECHNOLOGY READINESS LEVEL (TRL): TRL9
COUNTRY: SOUTH KOREA
ID NUMBER: TO174631

OVERVIEW

The skin microbiome is an important factor in determining skin health status. However, to date, there have been limited ways to improve the skin microbiome for healthy skin. The company has developed a technology to improve the distribution of the skin microbial flora. Using natural products comprised of plant extracts, the technology allows microflora distribution that is beneficial to skin health.

Skin microflora composition of patients with atopic dermatitis (AD) is different to that in healthy individuals. Using the technology on 21 subjects, the results showed a reduction of *Staphylococcus aureus*, a key colonizing bacterium on skin of AD patients, by an average of 29%, and *Cutibacterium acnes*, an acne bacterium, by an average of 23%. Improving the distribution of these microorganisms brings about several benefits including ameliorated damaged skin barrier, relieved primary irritation of sensitive skin, delayed aging, and improved skin pigment uniformity. Nearly half of the AD patients experienced effects of treating their symptoms, with the remaining having improvements in symptom relief. The technology allows for other aspects of

skin health regeneration such as improved moisture retention for up to 72 hours, improved skin complexion, and reduced body odor.

The majority of current solution offerings has presented limited outcomes of skin microbiome improvements. Unlike these existing solutions, the plant-based technology allows redistribution of skin microflora, which is key to treat and manage atopic dermatitis.

The technology provider is seeking collaborations with partners who are interested to adopt this plant-based composition for co-developing new skincare products for AD.

TECHNOLOGY FEATURES & SPECIFICATIONS

The technology comprises plant-extracted natural products that can improve the skin's microbial flora in a healthy way.

The technology presents the following advantages:

- Promising clinical test results on the improvement effects on skin flora of 21 subjects at a third-party accredited clinical testing institution. The technology reduced *Staphylococcus aureus*, the key colonizer of AD patients' skin, by an average of 29%, and the acne bacterium, *Cutibacterium acnes*, by an average of 23%
- Therapeutic effects on atopic dermatitis: After eight weeks of use, 50% of users with AD have their symptoms treated, and the remaining users experienced clear improvements in symptom alleviation
- Natural origin: the technology comprises extracts of edible plants where the active ingredients were released on the market since June 2020 and have been used by more than 5,000 people. To date, there is no report of side effects for these active ingredients.
- Continuous use is possible: Skin diseases can recur even after symptoms improve. Therefore, skin diseases have to be managed continuously. Since the composition of the technology has no reported side effects, it can be used in a prolonged, continuous manner.
- Suitable for infants and people with sensitive skin given its mild, non-irritating nature
- The composition can be formulated in form of skincare and cosmetics such as lotion for users' convenience

POTENTIAL APPLICATIONS

The European AD management market was US$1.8 billion in 2019 and is expected to reach US$2.8 billion in 2024. Currently, 10% market share is expected for the technology and can expand by over 20% to cover market adoption by users who traditionally do not use / have not received treatments for AD.

Potential applications:

- Removing body odor: When microbial flora on the skin is redistributed as a result of using the technology, bacterial metabolism changes and odor production is suppressed. In a sensory test conducted on subjects aged over 60 years, all participants agreed that their odor were greatly reduced upon using the technology
- Healthy skin aging: Using the technology improves the skin microbial flora which in turn helps to stimulate and enhance immunity. Various skin health indicators are also improved. It can be developed as a skin care product for healthy skin aging and for the elderly.
- Skincare for infants and children: Due to limited exposure to train their immune system, infants and children are prone to various immune-related diseases. The technology does not remove all microorganisms by sterilization, but selectively

eliminates bad microorganisms and increases the population of good microorganisms. Redistributing skin microflora to possess more good microbes helps to stimulate the skin immunity. Hence, the technology can serve a skincare material for infants and children.

- Acne management: The technology reduces Cutibacterium acnes by 23% on average. Besides improving skin conditions, the technology can be developed as products that continuously manages acne
- Formulations for pharmaceutical and quasi-drugs applications

UNIQUE VALUE PROPOSITION

- Provides management of the skin microbial flora, which is the most basic health care of the skin
- Easy to use, in the same way as a general lotion
- Presents clear skin disease improvement effects
- No reported side effects, hence it can be used in a continuous, prolonged manner for managing chronic skin disorders
- Provides skin care function, hence it can be formulated for cosmetics applications