

Moisturizing and anti-wrinkle effect of Korean Natural citron Junos Oil and bioconverted ethylhexyl Korean citron Junos oil



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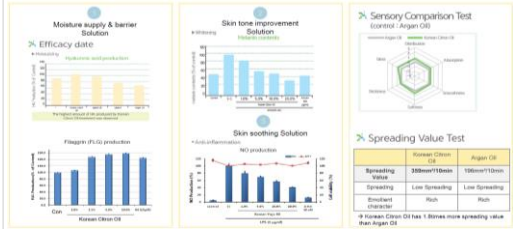
Introduction:

Generally, natural vegetable oil contains about 90 to 98% or more of the component as triglycerides, and consists of less than 10% mono-glyceride and di-glyceride. Mono-glyceride is a form in which glycerol and one fatty acid are combined with ester, and di-glyceride is a form in which glycerol and two fatty acids are ester-linked. In the food industry, these were used not only to mix heterogeneous foods as a food additive, but also as a gelatinizing of starch. On the other hand, in the cosmetic industry, it is mainly used as an emulsifier of cream, emulsion, and ointment because it has high emulsification stability. Di-glyceride has the properties of oil and wax and it has an intermediate property between oil and fat and mono-glyceride. It has excellent compatibility with oil, so it can be used as a DDS (Drug Delivery System) though controlling content. On the other hand, as a cosmetic ingredient, triglyceride has a disadvantage in that it is easy to remain on the skin oily because it has a larger molecular weight than mono-glyceride and di-glyceride. In addition, natural vegetable oils are more expensive than synthetic oils such as dimethicone and there is a risk of acidification because of the large number of unsaturated bonds.

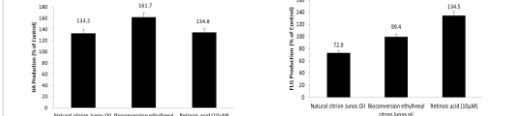
Citron (YUJA, Citrus Junos) was used for this study. It originated and grows wild in central China and Tibet. It is mainly distributed and produced in Korea, China, and Japan, but Korea is known to have the strongest flavor and thickest fruit peels. In particular, citron from Goheung region, which is known as the main area of citron, was used for this study. In Goheung, about 10,000 tons of citron is processed annually, and as a by-product, citron seeds generate about 20% of raw materials. Some farms use it as a fertilizer, but most of them are disposed and this causes local environmental problems. Therefore, in this study, it is to develop natural vegetable oils by utilizing the waste citron seed resources according to the trend of clean beauty and up-cycling cosmetics trend. It is not simply a concept of recycling, but it aims to reduce environmental pollution and form a value chain structure of resources. In addition, it is to develop a light emollient derived from nature by decreasing the content of triglyceride and increasing the content of mono-glyceride and di-glyceride though bio-conversion technology using enzymes

Results:

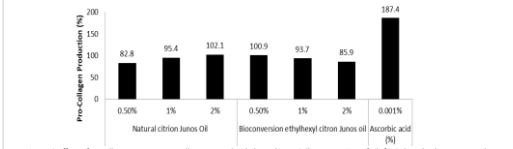
Effect on the contents of Natural Korean Citron Oil



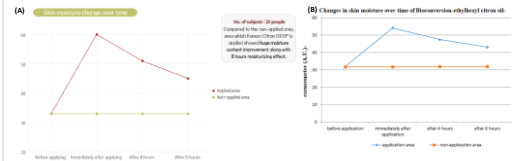
Moisturizing effect of Natural citron Junos Oil and Bioconversion-ethylhexyl citron oil



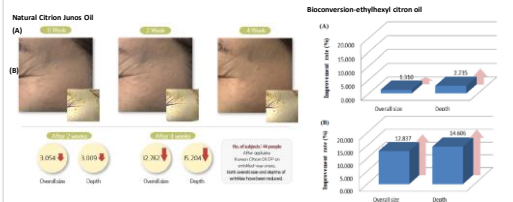
Procollagen contents effect of Natural Citron Junos Oil and Bioconversion-ethylhexyl citron oil



Moisturizing human efficacy evaluation



Evaluation of human efficacy for improving eye wrinkles

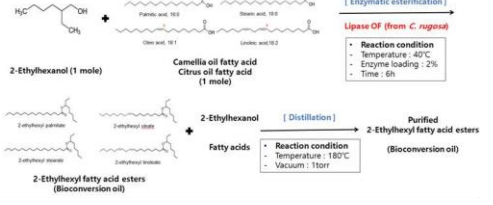


Materials & Methods:

Materials



Methods



Discussin and Conclusions:

In this study, a cosmetic emollient that meets upcycling and clean beauty trends was developed using the by-product of citron in Korea. In addition, despite the bioconversion technology using enzymes, the disadvantages of natural vegetable oils, which are sticky and oily, have been supplemented. Unlike natural milk oil mainly composed of triglycerides by the transesterification reaction principle, the content of triglycerides in bioconverted milk oil was significantly reduced, and the content of mono- and di-glycerides increased relatively. Both natural milk oil and bioconverted milk oil increased the production of hyaluronic acid by 30-40%, confirming the moisturizing effect and the improvement of wrinkles around the eyes.

Natural oils extracted from plants can satisfy consumers who are looking for eco-friendly materials, but there are limitations in cosmetic formulations due to stickiness and oily feeling. Bio-conversion technology improves light feeling, distribution, absorption and softness when applied to the skin. In addition, anti-inflammatory and moisturizing effects are improved, so it is expected to continue to expand into cosmetics and external skin applications.

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