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Effects of “Ceraminol[®]”, a Novel Ceramide Material from Wine Crystals (Wine Lees) on Skin Function.

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【Purpose】

The global consumption of wine amounts to 26 billion liters annually, resulting in approximately 1.7 million tons wine lees (wine crystal). We have focused on these unutilized wine crystals, a by-product from grape and yeast precipitates. Through our research, we have developed a ceramide material called as “Ceraminol[®]”, which is extracted from wine crystals. We revealed that Ceraminol[®] contains glucosyl ceramide and structurally similar to human type free ceramide. This study aims to investigate its effectiveness on skin function.

【Methods】

To assess effects of Ceraminol[®] on skin function *in vitro*, we tested using a Human Keratinocyte (HaCaT) cells and 3D human epidermal equivalent (HEE) model. HaCaT cells were treated with Ceraminol[®] for 3 days, while 3D HEE was treated with Ceraminol[®] for 2 days. Then, skin function was assessed using histological and/or molecular biological methods.

In addition, we assessed effects of Ceraminol[®] in human study. Healthy adult participants were orally given either a placebo or 100 mg or 500 mg/day of Ceraminol[®] for 4 weeks, and then measured skin barrier function as transepidermal water loss (TEWL).

【Results】

In vitro assay, Ceraminol[®] increased epidermal thickness through enhancing expressions of mRNA related to keratinocyte differentiation (*Profilaggrin* and *Loricrin*) and ceramide synthase (*SPT*). Furthermore, in the human study, orally intake of Ceraminol[®] (100 and 500 mg/day) for 4 weeks showed significant improvement in TEWL compared to the placebo group. These results suggest that Ceraminol[®], a novel ceramide material from wine crystals, have the ability to improve skin barrier function leading to healthy skin.