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〈一般論文〉

好熱性細菌および酵母菌による多段階培養発酵技術から得られた発酵エキスの皮膚に対する有用性

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Efficacy of Fermented Extract Obtained from Multiple-Processed Fermentation Technology of Thermophilic Bacteria and Yeast

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Abstract

Demand for natural ingredients is growing in cosmetic industry, and *Saccharomyces cerevisiae* extract is one of the most common natural ingredients. We have conducted the functional evaluation of Multiple-Processed Fermentation Extract (MPFE), *Thermus thermophilus* and *Saccharomyces cerevisiae*, the conventional technology in food industry, *via* our original fermentation process. Our results show that the MPFE exhibits several skin benefits such as recovery, anti-inflammation, moisturization *etc.* based on gene expression analysis. Furthermore, it demonstrated equal or even higher anti-inflammation benefit compared with dexamethasone, the steroidal anti-inflammatory drug, based on the significant decrease of the inflammatory marker analysis. MPFE also demonstrated higher cell proliferation and skin barrier repair compared with either *Thermus thermophilus* or *Saccharomyces cerevisiae*, respectively. In terms of macrophage activation, MPFE showed higher activation than lipopolysaccharide (LPS), the well-known macrophage activator.

The combination of *Thermus thermophilus* and *Saccharomyces cerevisiae* demonstrated strong synergy in terms of skin cell proliferation, anti-inflammation, macrophage activation and skin barrier repair compared with either *Thermus thermophilus* or *Saccharomyces cerevisiae*, respectively, thereby suggesting the better skin benefits than each individual ingredient. This evaluation method provides a new approach to study the skin benefits for the combination of multi fermented extracts.

Key words: yeast, thermophilic bacteria, bacterial fermentation extract, LPS.