日本香粧品学会誌　Vol. 37, No. 2, pp. 90–94（2013）

〈一般論文〉

新しい香粧品基材：マグロ原皮由来ゼラチンビトリゲル膜

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A Novel Base Material for Cosmetics: A Gelatin Vitrigel Membrane Derived from Tuna Skin

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（Accepted: April 8, 2013）

Abstract

A collagen vitrigel membrane composed of highly-dense collagen fibrils comparable to connective tissues *in vivo* was prepared by the following three processes: gelation of collagen sol, vitrification of collagen gel, and rehydration of vitrified collagen gel. It possesses not only excellent transparency and mechanical strength as a culture scaffold but also potentials to penetrate proteins and drugs, resulting the expansion of its application in the fields of regenerative medicine, drug development and alternatives to animal experiments. However, the practical use of a collagen vitrigel membrane in cosmetics was inappropriate due to high cost collagen. Here, we developed a novel technology for converting a cheap edible gelatin gel derived from tuna skin into a gelatin vitrigel membrane that is undissolved at 37°C by incorporating the ultraviolet irradiation after the vitrification process. The gelatin vitrigel membrane was confirmed to be non-cytotoxic by culturing human dermal fibroblasts on it as a culture scaffold. Also, a dried gelatin vitrigel membrane is converted into a patch that clings closely to skin surface by immersing it in an aqueous solution containing cosmetic agents immediately before use, so that we can get a comfortable feeling from their effects. Therefore, we hope its application to the development of cosmetic patches that can facilitate the sustained-release of chemicals related to the effects such as moisture, aroma and refreshment.

Key words:　vitrigel, gelatin, collagen, cosmetic patch.