

〈原 著〉

## 美白成分「アルブチン」の作用機序と香粧品科学的有用性

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### Depigmenting Action of Arbutin and Its New Aspects in Cosmetic Science

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#### Abstract

Arbutin is a naturally occurring  $\beta$ -D-glucopyranoside with hydroquinone in certain herbs that, on topical application, has been shown to be effective in the treatment various cutaneous UV-induced hyperpigmentations characterized by hyperactive melanocyte function. In human melanocyte culture, the melanin production was inhibited significantly by arbutin determined by eumelanin specific radicals using electron spin resonance (ESR) spectrometer. Arbutin had a reducing tyrosinase activity at the concentration that no cytotoxic effect was observed. In addition, arbutin suppressed the number of dendrites and length of dendrites of melanocyte in response to UV radiated keratinocyte-conditioned medium. Also, arbutin inhibited the hydroxyl radical generation *in vitro*. The mechanism of the selective melanin inhibition of arbutin was primarily caused by its reduction of melanosomal tyrosinase activity, and partially related to its suppression of the dendrite formation or hydroxyl radical generation in response to UV radiation.

**Key words:** pigmentation, human melanocyte, ESR, free radical, dendricity.