

〈原 著〉

## 界面活性剤との分子錯体形成を利用したハイドロキノンを含む新しい美白剤の開発とその評価

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### **Development of New Whitening Agents with Hydroquinone Stabilized by the Complex Formation with Surfactants and the Evaluation for Melanogenesis Inhibitory Effect and Skin Stimulus**

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#### **Abstract**

Hydroquinone is well known as dermatologists for skin pigmentation since it has a melanogenesis inhibitory effect and has been used clinically. However, hydroquinone easily changes its structure on exposure to light or oxygen and upon heating. As a result, its color became brown or black. Recently we found that hydroquinone makes complexes with a variety of surfactant molecules. When the complex was formed, hydroquinone was stabilized without coloration. X-ray crystal structure analysis of the complexes revealed that the hydroquinone molecule is closely packed and covered with the surfactant molecules in the crystalline lattice. Among the complexes, a complex between hydroquinone and benzyl(hexadecyl)dimethylammonium chloride was examined in detail to estimate its skin stimulus and safety. Moreover, the melanogenesis inhibitory effect was evaluated clinically. In every examination, the complex showed a very good indication for the whitening agent.

**Key words:** whitening agent, hydroquinone complex, stabilization-of-agent, clinical evaluation, structure analysis.