〈原　著〉

パーマネントウェーブ用剤に関する研究 —システインとチオグリコール酸についての比較検討—

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Studies on Cold Permanent Wave Lotion Comparative Studies between Cysteine and Thioglycolic Acid

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Studies were made to determine the relative effects of human hair resulting from the use of cysteine cold wave lotion and thioglycolic acid cold wave lotion in the manner, within the concentration range and with additives allowed by the Ministry of Welfare.

1) The amino acid compositions of the hair treated with cysteine cold wave lotion and thioglycolic acid cold wave lotion were investigated. Considerable changes in cysteine and cysteic acid contents in amino acids were observed in both. In cysteine-treated hair, both the cystine and cysteic acid increase to a limit with the number of treatments and reaches a maximum value. On the other hand, the thioglycolic acid-treated hair, the cystine decreases while cysteic acid increases proportionally with the frequency of treatment.

2) In thioglycolic acid-treated hair, the water absorption increases proportionally with the number of treatments whereas in cysteine treated hair, the increase is smaller. Moreover, it was found that if the hair damaged by thioglycolic acid cold wave lotion was treated again with cysteine cold wave lotion, the water absorption would decrease.

3) The measurement of alkaline consumption on damaged hair revealed that this quantity varies in proportion to water absorption.

4) It was found that the breaking point of the hair treated with cysteine cold wave lotion was greater than that of the hair treated with thioglycolic acid cold wave lotion under the identical condition. It implies that the former damages hair to a lesser extent.

5) By comparing waving efficiencies of cysteine cold wave lotion and thioglycolic acid cold wave lotion, the latter was found to produce approximately 20% greater efficiency initially. However, the efficiency for the latter decreased with the treatment frequently and eventually it became impossible to form a wave. On the other hand, the former was able to maintain a constant efficiency and did not make the hair to lose the ability to form waves. Moreover, it was found that by treating the hair damaged by thioglycolic acid cold wave lotion with cysteine cold wave lotion, it was possible to make the hair regain its ability to maintain waves.