Mandom Discovers Highly Humid Environments Promote Scalp Oil Migration to the Hair

- Large effect on the holding ability of hair styling agents -

Mandom Corporation (Headquarters: Osaka; CEO: Motonobu Nishimura; hereinafter, "Mandom") believes that improving the styling ability (setting ability, arranging ability, and holding ability) is when developing hair styling gels. Previous studies have revealed that sweat and humidity, as well as scalp oils, (oil secreted from the scalp) negatively affect styling ability. (Reference: 7/10/2013 News Release, "Mandom Discovers Scalp Oil Decreases Styling Ability")

In the present instance, we conducted an additional study, the results of which showed that the migration of scalp oils from the surface of the scalp to the hair is promoted by high humidity. Furthermore, the holding ability, a type of styling ability, was found to decrease as scalp oils increased in the hair.

The results of this study are intended to be published at the 74th SCCJ Research Symposium to be held in Osaka on 7/10/2014.

High humidity affects hair-style maintenance

Using a scalp/hair model (human hair implanted in an artificial scalp) and an artificial scalp resin (resin prepared based on analytical values of scalp oils), we studied the relationship between styling ability and the effects of humidity on oil migration to the hair.

(1) High humidity promotes migration of scalp oils to the hair

The scalp/hair model roots were immersed in an artificial scalp oil and placed in environments with 50%, 70%, and 90% humidity at a set temperature of 40 °C in order to study the migration of the artificial scalp oil to the hair. More artificial scalp oil was found to migrate to the hair as the humidity increased (Figure 1).

(2) Holding ability, a type of styling ability, decreases as the quantity of scalp oil increases.

Measurements of holding ability (load required to bend a hair bundle by applying force) were performed on bundles of hair to which different amounts of artificial scalp oil had been applied, which were then styled with a hair-styling agent (hair gel).

The holding ability was found to decrease as the quantity of artificial scalp oils increased (Figure 2).

Humidity is known to negatively affect hairstyle maintenance, but high humidity was newly revealed to also exert a negative effect on the holding ability of hair-styling agents by promoting the migration of scalp oils to the hair, increasing the quantity of those oils in the hair.

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Mandom is currently selling “Gatsby Hair Jam” as a hair styling product that minimizes the effect of scalp oils. In the future, the results of this study will be further utilized in applications for other products.

<References>

Figure 1. Quantity of artificial scalp oil migrating to the hair

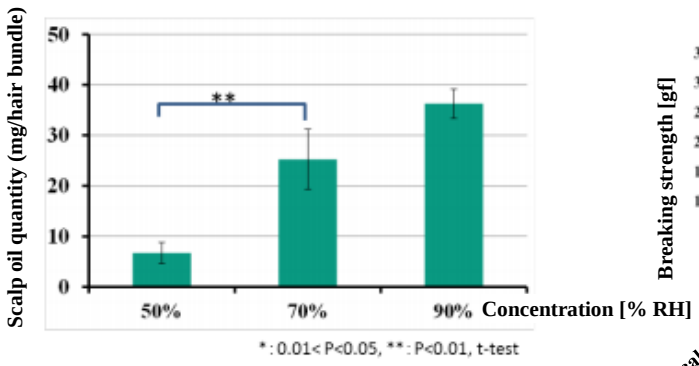
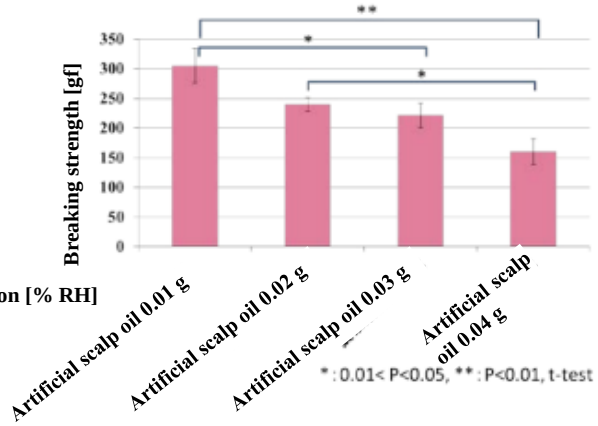


Figure 2. Artificial scalp oils and holding ability (breaking strength)



<Reference>

July 10, 2013 News release “Mandom Discovers Scalp Oils Decreases Styling Ability”