

**Tradename:** ACB Rice Water SF

**Code:** 16932

**CAS #:** 68553-81-1 & 68333-16-4 (or) 1686112-36-6

**Test Request Form #:** 9079

**Lot:** N220316N

**Sponsor:** *Active Concepts, LLC; 107 Technology Drive Lincolnton, NC 28092*

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**Principal Investigator:** *Jennifer Goodman*

**Test Performed:**

Humidity Protection Analysis

**Introduction**

A bio-film's action as a scaffolding rather than a true barrier means it can support and protect hair. This scaffolding allows small molecules and hydrogen ions in via its semi-permeable facade. It is this scaffolding and its semi-permeable membrane that promotes the exhibition of properties such as moisturization, pH balance, barrier protection, and additionally, protection from hair weakening after exposure to thermal processes. We can see the actions of these bio-films through humidity protection resulting in smoother and well maintained hair tresses with less frizz.

Accordingly, a Humidity Protection Analysis was performed to qualitatively assess the humidity protection capabilities of **ACB Rice Water SF** on hair.

**Assay Principle**

Human hair tresses were tested to understand the protective capability of a cosmetic product. Tress images are obtained after testing material application and after exposure to humidity. After treatment, qualitative analysis of images was conducted.

## Materials

- A. Hair Samples: Human Virgin and Bleached Blonde
- B. Incubation Conditions: Average 28°C; Average 93% Relative Humidity
- C. Equipment: HOBO Onset temp/RH logger; Canon EOS Rebel Digital Camera

## Methods

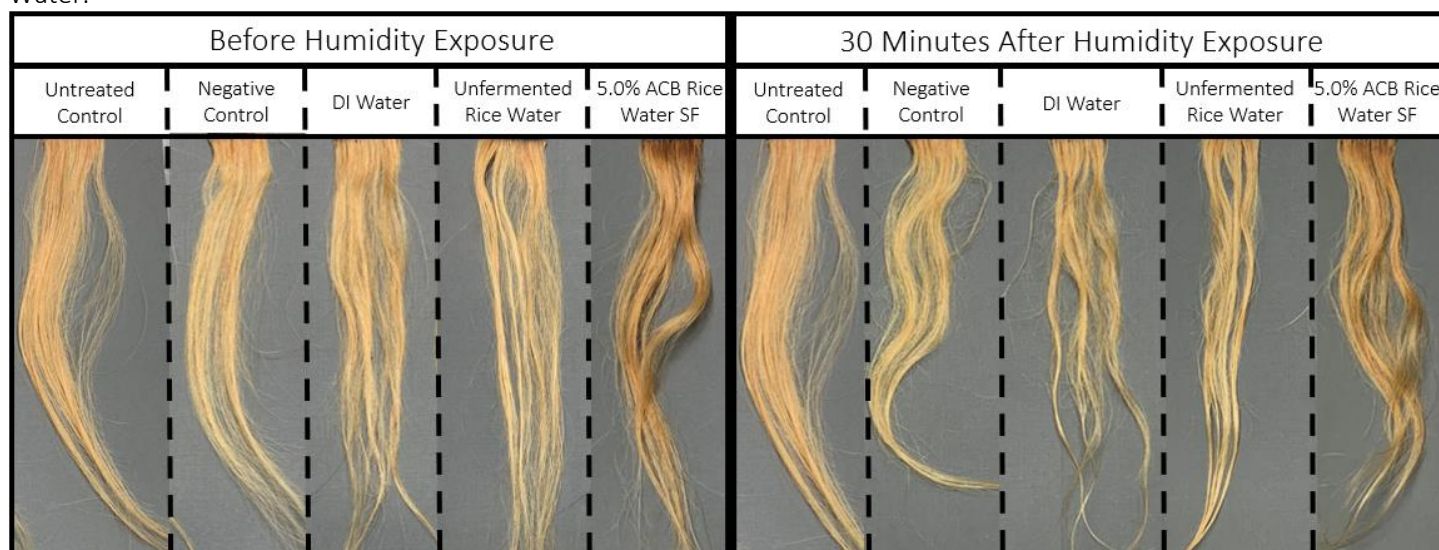
Ten hair tresses (five bleached blonde and five virgin) were collected and treated with DI Water, Unfermented Rice Water, 5.0% **ACB Rice Water SF**, or left as a Negative Control. An Untreated Control was left untreated and was not subjected to humidity. Each hair tress was evenly soaked in its designated treatment and blown dry. Initial images were taken after treatment and drying. The hair tresses were then fastened to the lid of the humidity chamber, allowing a natural hanging position and space in between each tress. A 2000 mL beaker of boiling water was placed into the chamber and the lid secured creating a closed, controlled environment. The temperature and humidity were monitored for the duration of the exposure. Final images were taken after 30 minutes of humidity exposure.

**Table 1.** Descriptions of the Conditions and Treatments for each Hair Tress

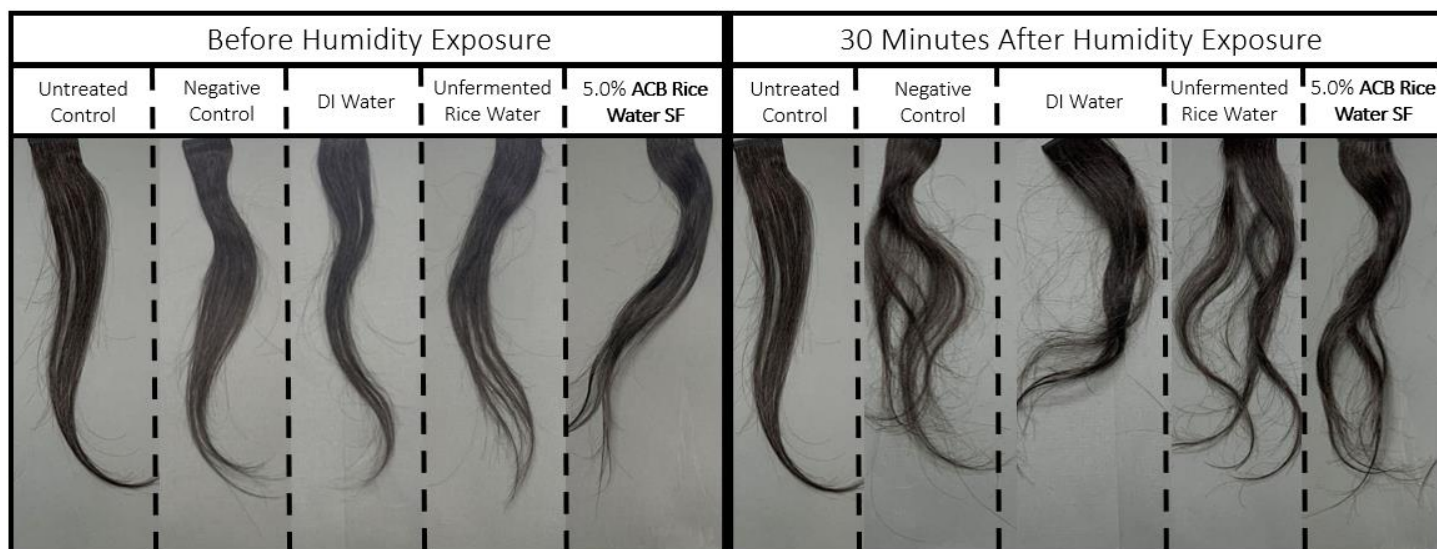
Condition	Treatment Description
Untreated Control	No Treatment, No Humidity
Negative Control	No Treatment, Humidity
DI Water	Water Soak, Humidity
Unfermented Rice Water	Unfermented Rice Water Soak, Humidity
5.0% <b>ACB Rice Water SF</b>	5.0% <b>ACB Rice Water SF</b> in Water Soak, Humidity

## Results

The data obtained from this study met criteria for a valid assay and the Untreated and Negative Controls performed as anticipated. Compared to the Negative Control, the tresses treated with DI Water and Unfermented Rice Water had similar appearances and did not reduce frizz. The tresses treated with 5.0% **ACB Rice Water SF** provided hair humidity protection and reduced development of frizz compared to the Negative Control and hair treated with DI Water and Unfermented Rice Water.



**Figure 1.** Before and 30 Minutes After Humidity Exposure in Bleached Hair Tresses



**Figure 2.** Before and 30 Minutes After Humidity Exposure in Virgin Hair Tresses

## Discussion

A qualitative study was performed to determine the humidity protecting ability of **ACB Rice Water SF** in hair tresses.

As shown in Figure 1, the Bleached Negative Control, DI Water, and Unfermented Rice Water hair tresses were extremely frizzy after humidity exposure compared to the Untreated Control. Conversely, the bleach blonde hair tresses treated with 5.0% **ACB Rice Water SF** exhibited a smooth and shiny appearance compared to the Negative Control, DI Water, and Unfermented Rice Water. This data indicates **ACB Rice Water SF** exerts superior humidity protection with chemically treated blonde hair compared to water alone.

With respect to virgin hair, the Negative Control, DI Water, and Unfermented Rice Water tresses were also extremely frizzy after humidity exposure compared to the Untreated Control (Figure 2). Conversely, 5.0% **ACB Rice Water SF** protected the virgin hair and the tresses appeared smooth and shiny compared to the Negative Control and DI Water. This data indicates **ACB Rice Water SF** exerts augmented humidity protection with virgin hair compared to water alone.

Taken together, these results indicate **ACB Rice Water SF** reduces the volume and frizz produced by humidity when added to personal care applications at recommended use levels. Collectively, **ACB Rice Water SF** smooths and protects both chemical treated and virgin hair reducing the visual consequences of humidity exposure.