

# PALM-BASED COLOUR CARE SHAMPOO AND CONDITIONER

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274

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Ultraviolet (UV) light is the most energetic solar radiation reaching the earth's surface. UV radiation can be divided into three primary regions UVC (<290 nm), UVB (290-320 nm) and UVA (320-400 nm). Over exposure to sunlight leads to sunburn, premature ageing and wrinkling of the skin. These are effects, which are well known and thoroughly investigated. On hair, the most obvious effect of sunlight is that of discoloration (Bernhardt *et al.*, 1993). UVB radiation is the primary cause of natural photo damage since the most significant chromophores in hair protein absorb UVB. Although UVA is not the primary cause of UV damage to hair, scientists have found that visible and UVA light are largely responsible for artificial hair colour fading (Locke *et al.*, 2003).

Previously, hair colouring is just used for hiding grey hair. However, in this new millennium, it becomes a trend for young people to colour their hair. Moreover, the increasing trend and potential growth of the hair colouring industry is evident with the production of more local hair colouring products like Sundance and ColorPro together with the other international brands like Natea and Feria (Ganesan, 2001). Therefore, it is important to develop shampoo and conditioner for coloured hair to prevent fading.

## PALM-BASED COLOUR CARE SHAMPOO AND CONDITIONER

Foaming test of palm-based colour care shampoo in comparison with the commercial shampoos was carried out at 0.1% concentration with deionized water at room temperature. The foaming power and stability of the palm-based colour care shampoo are comparable to the commercial shampoos (Figure 1).

The palm-based colour care shampoo and conditioner are formulated to protect hair from the harmful effects of UVA radiation (Figure 1). Evaluation by *in vitro* method indicated that the palm-based colour care shampoo and conditioner have better UVA protection compared to the commercial colour care shampoos and conditioner (Figures 3 and 4).

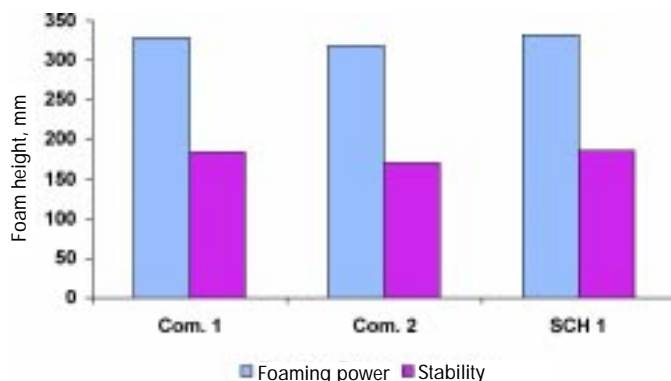


Figure 1. Foaming power and stability of shampoo at 0.1% concentration/ de-ionized water.



Figure 2. Palm-based colour care shampoo and conditioner.

The coloured hair treated with the palm-based colour care shampoo and conditioner in comparison with the commercial colour care products were exposed to UVA light for 96 hr. The result showed that the total colour difference of the coloured hair treated with the palm-based colour care products was comparable to the commercial colour care products. The Student T-test analysis showed no statistically significant difference between the coloured hairs treated with the palm-based colour care products and commercial colour care products with probability value ( $p$ ) < 0.05 (Figure 5).

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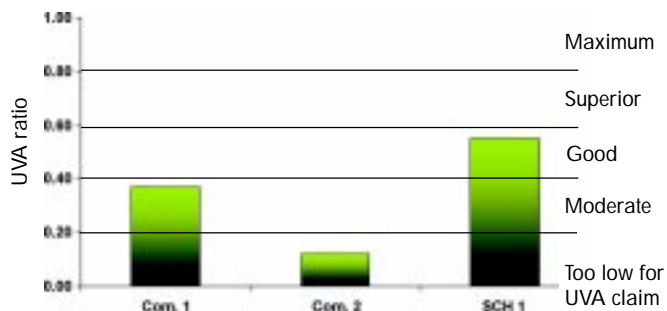


Figure 3. UVA protection shampoo versus commercial shampoos.

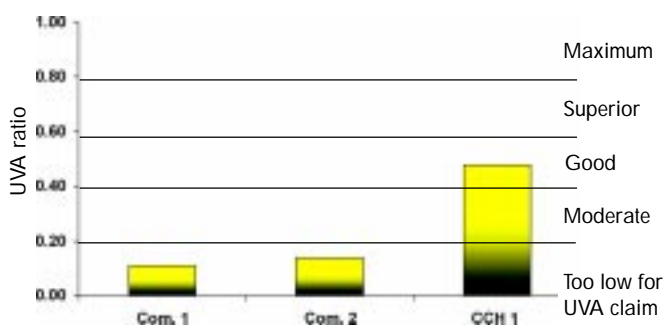


Figure 4. UVA protection conditioner versus commercial conditioners.

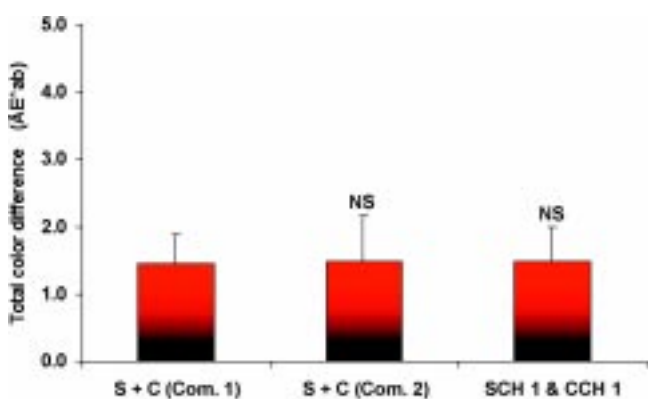


Figure 5. Total colour difference of treated coloured hair after 96 hr UVA exposure.

## CONCLUSION

With the right combination of the palm-based materials and UVA protection as an active material, these palm-based colour care shampoo and conditioner can help to minimize the colour fading of coloured hair caused by UV light.

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