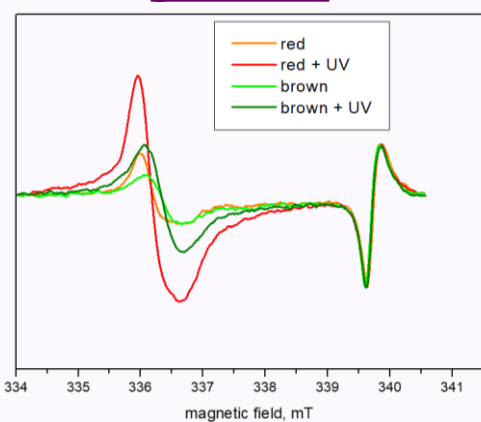


RHF

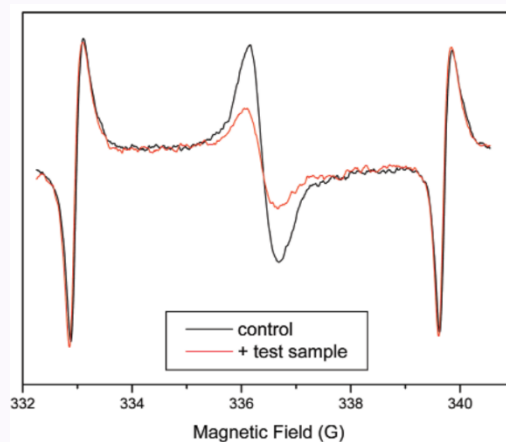
Radical Hair Protection Factor

- Measures the amount of melanin inside the hair and the increase in melanin free radicals during UV radiation.
- Represents the ratio between the number N of generated free radicals in the untreated versus treated hair assuming the same applied UV dose.
- Characterizes the protective effect of sunscreens, UV filters, and radical scavengers. Formulations containing UV filters or antioxidants reduce the amount of UV induced free radicals in the hair.
- The information can be useful for screening of raw materials, photostability tests, discoloration / graying protection, claim support studies.

Indifferent hair types different amounts of free radicals are generated



UV induced melanin signal in hair with and without protection



Test Products:

Cosmetic formulations containing UV filters and/or actives
 Nota Bene: a placebo formulation is required.

Principle:

Direct ESR spectroscopy of intact natural melanin in human hair.

Conditions:

Measurements are performed at RT. Human hair (light brown, auburn, brown, black, red)

Kinetic measurements 0-20 min.

Concentration: tbd

Application time: tbd

UV-radiation: Hönle F2 sun simulator sun simulator

The radical hair protection factor RHF - The new parameter characterizing the beneficial effect of hair care products , Herrling, 2008