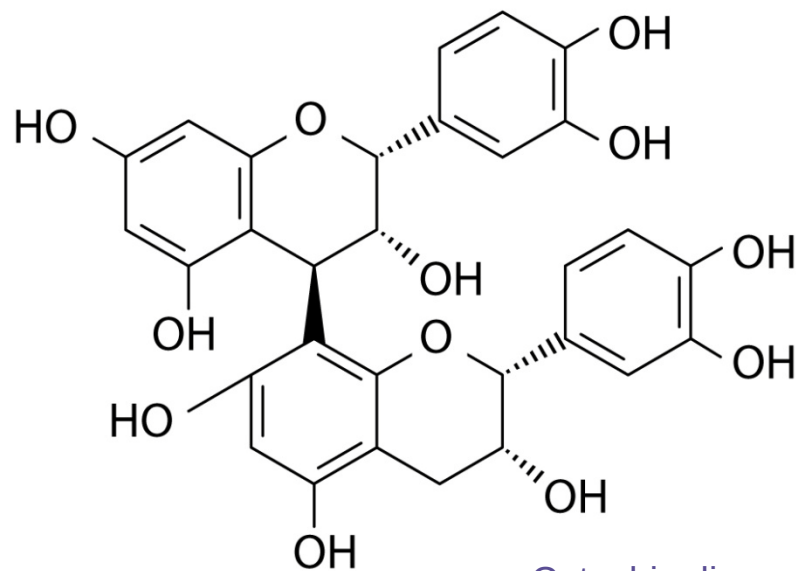




GSP-T

Powerful protection for all hair types and styles

What are Procyanidins?



- Phenolic compounds of the flavonoid family
- Oligomers formed by condensation of 2 up to 50 units of catechin and/or epicatechin
- Strong antioxidants (activity stronger than that of vitamin C and E)
- Anti-inflammatory, vasoprotective and anti-allergenic effects

Swiss Pinot Noir Grape, a Rich Source of Procyanidins



- Grapes (notably the red species such as Pinot Noir) are extremely rich in procyanidins
- Highest concentration in the seeds
- The cultivation of Pinot Noir in Switzerland has advantages because of the altitude, the cool and dry climate and the chalky soils which allow the grapes to produce and store more procyanidins.

Hair is Everyday Submitted to Stress

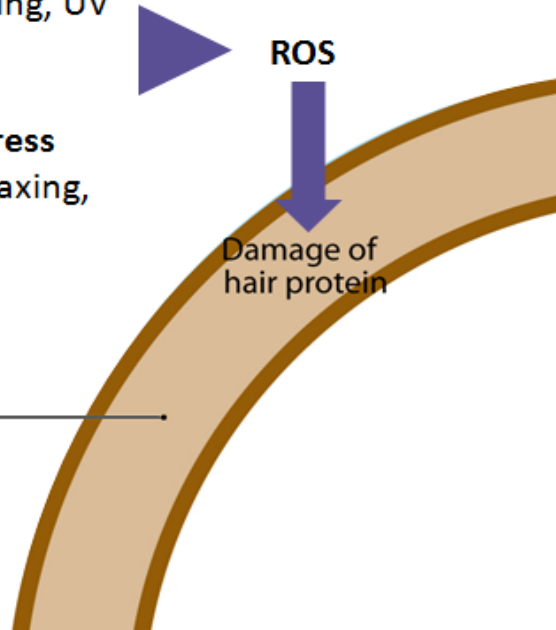
Physical stress

Combing, brushing,
heating, drying, UV
irradiation

Chemical stress

Perming, relaxing,
color

Hair

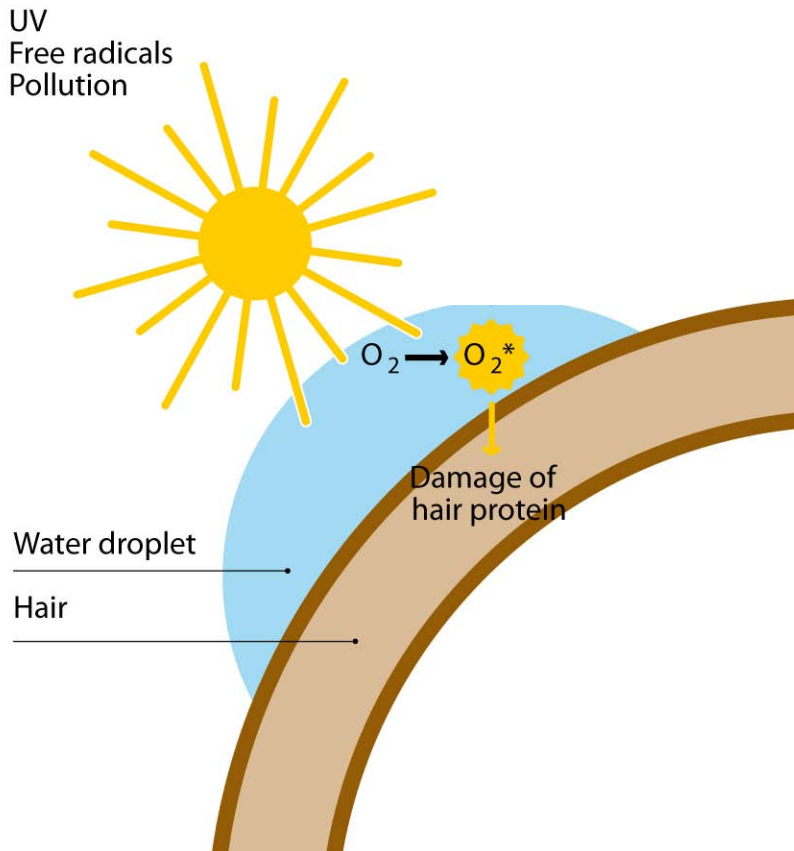


- **Physical stress**
→ hair dehydrates and damaged
- **Chemical stress**
→ formation of free radicals and ROS

ROS affect the structure of the hair notably by oxidizing and degrading the proteins of the hair surface.

Porous, sensitive and brittle hair

Wet Hair is More Sensitive than Dry Hair

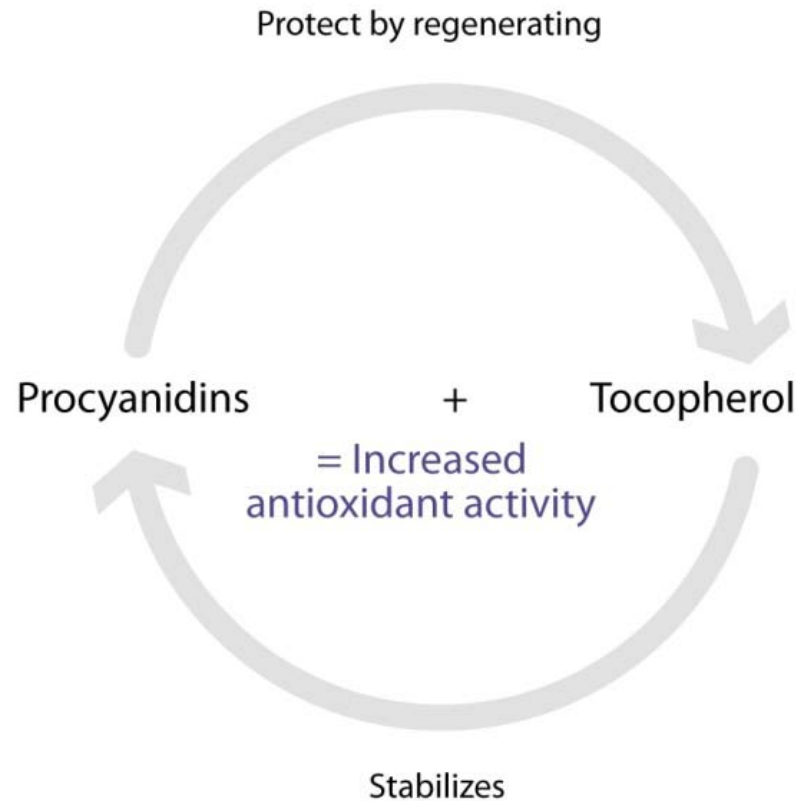


The water film on the surface of wet hair contains dissolved oxygen. Hair-dryers, UV and pollution activate this oxygen → ROS

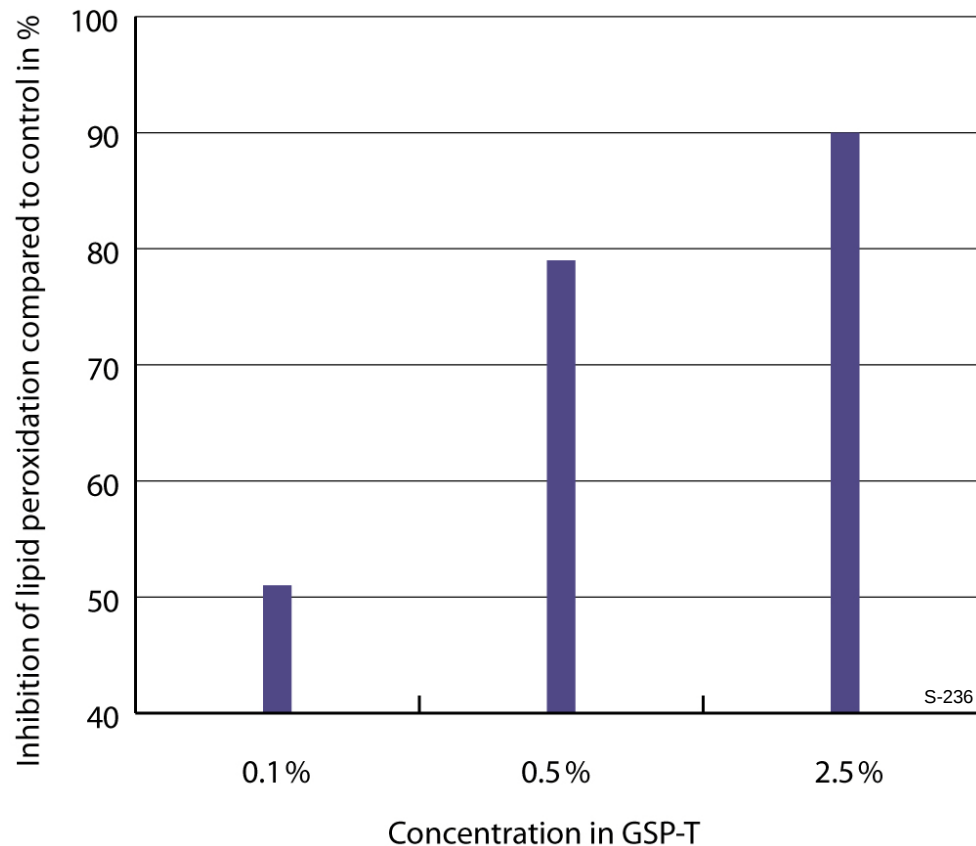
→ ROS are mostly generated in water

→ Wet hair is more sensitive to oxidation than when it is dry

Benefits of the GSP-T Combination



Inhibition of Lipid Peroxidation



Study design

A nanoemulsion with borage oil (rich in polyunsaturated fatty acids) was exposed to UV with different concentrations of GSP-T

Radiation: UVA (2 h, 500 W)

Determination of lipid peroxides:
TBA –assay (thiobarbituric acid assay)



GSP-T clearly inhibits the lipid peroxidation in a dose-dependent manner indicating an antioxidant effect.

Adsorption of Active Compounds on Hair Surface

Most actives in shampoos / conditioners are rinsed off after washing → insufficient protection.

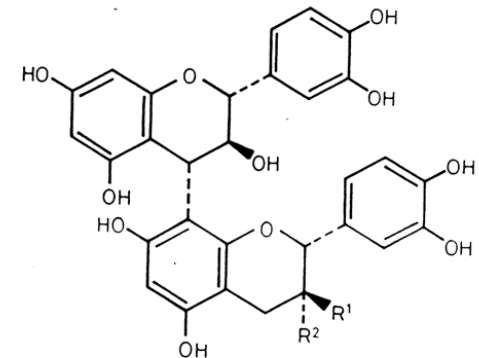
And GSP-T?

- **Procyanidins**

Tanning agents that react with proteins on the hair surface → covalent binding of procyanidins, no washing-out

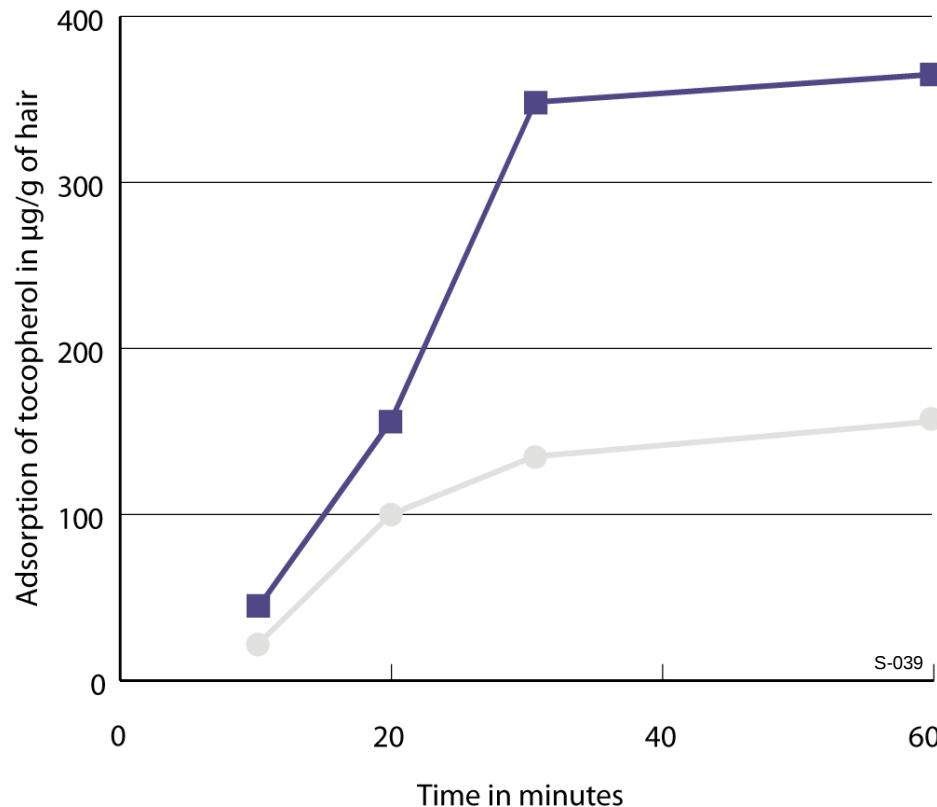
- **Tocopherols**

Lipophilic compound that normally don't stick on the hair surface → **study to prove adsorption**



Improved Adsorption of Tocopherol on Hair

● Tocopherol ■ 2.5 % GSP-T



Study design

Incubation of hair with 2.5% GSP-T (■) or its equivalent concentration in tocopherol alone (●)

Determination of tocopherol

Rinsing and air drying the hair, extraction of tocopherol using isopropanol, quantification by HPLC.



In combination with grape seed procyanidins, tocopherol has a high affinity to hair (procyanidins have the capacity to strongly bind to proteins and encase the tocopherol)

Hair Damage by Chemical Stress and UV

Study Design



Incubation of hair in an aqueous solution of GSP-T



Rinsing and drying of hair



Exposition of hair to stress factors:

water with surfactant, sea water

± UV (15 min UVA+UVB ~ 3.5 h intensive sunlight)



Filtration of hair

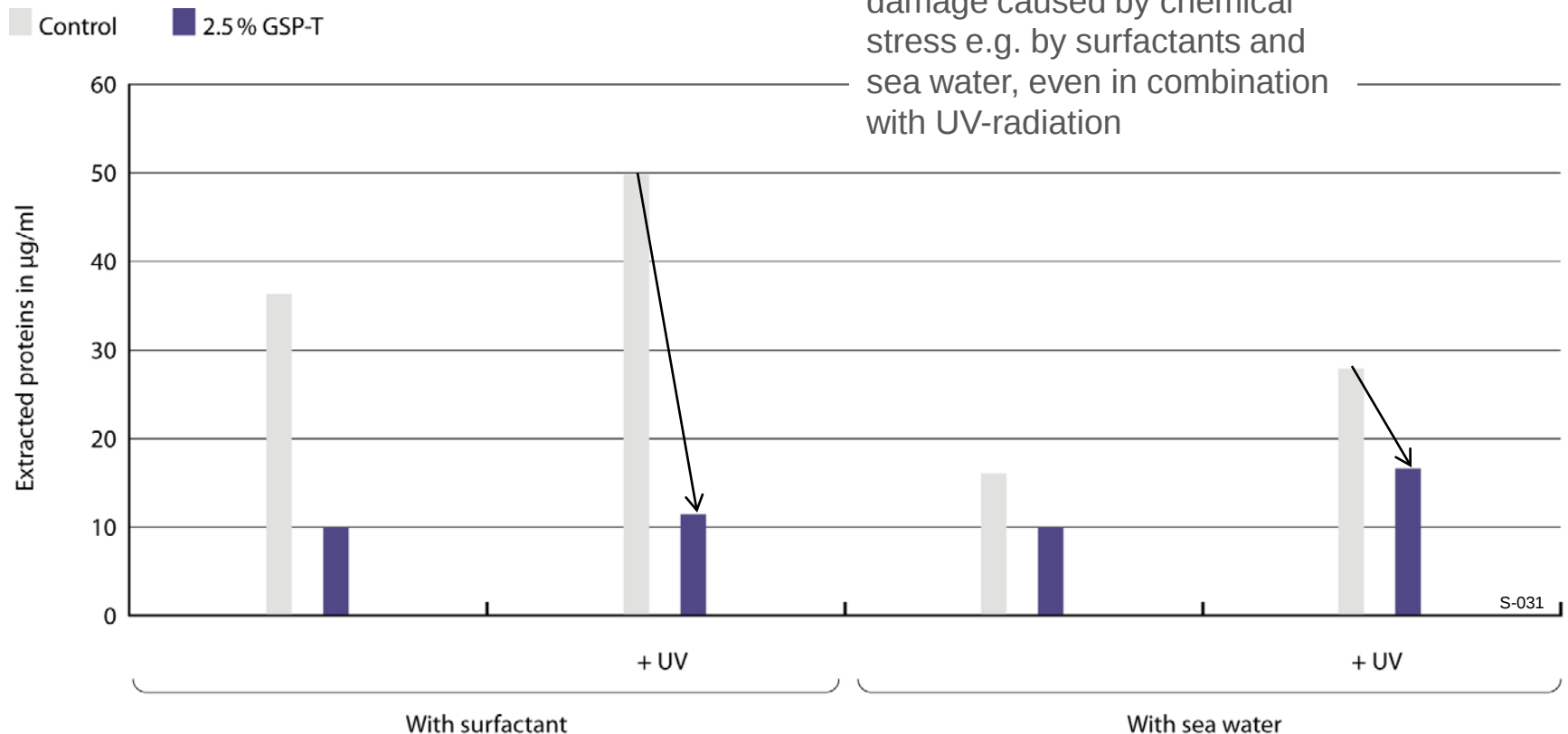


Determination of extracted protein and peptides in the filtrate (value for the degree of damage to the hair)

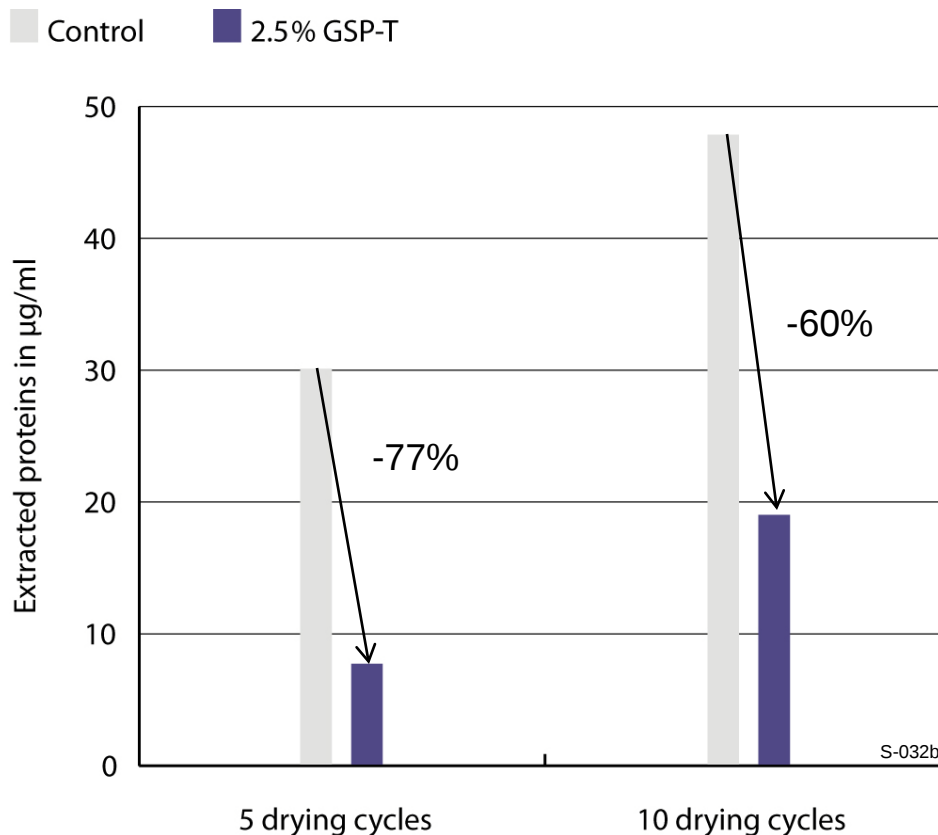
Hair Damage by Chemical Stress and UV Results



GSP-T strongly reduced hair damage caused by chemical stress e.g. by surfactants and sea water, even in combination with UV-radiation



Repeated Drying Damages Hair Protection by GSP-T



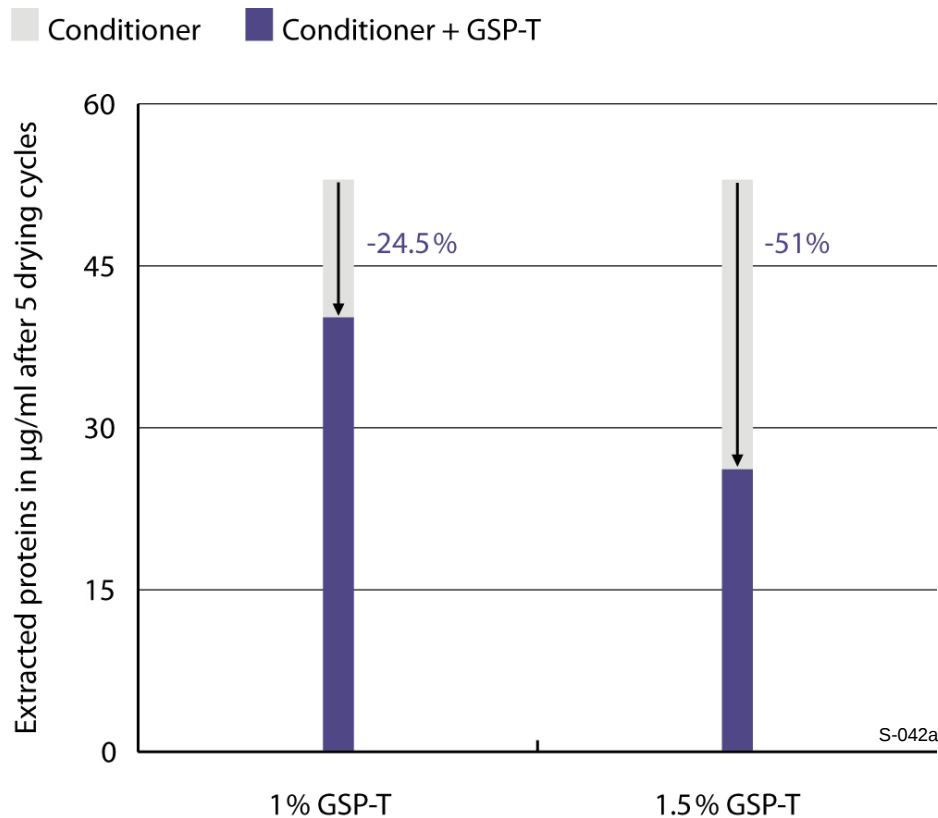
Design

1. Wetting of hair (water spray) and drying (hair-dryer) was repeated 5/10 times.
2. Washing hair with a 2% SDS solution
3. Filtration of hair
4. Determination of the concentration of proteins in the filtrate



GSP-T protects hair against damage caused by hair-dryers on a long-term basis (77% after 5 and 60% after 10 drying cycles)

Protective Effect of GSP-T in a Conditioner

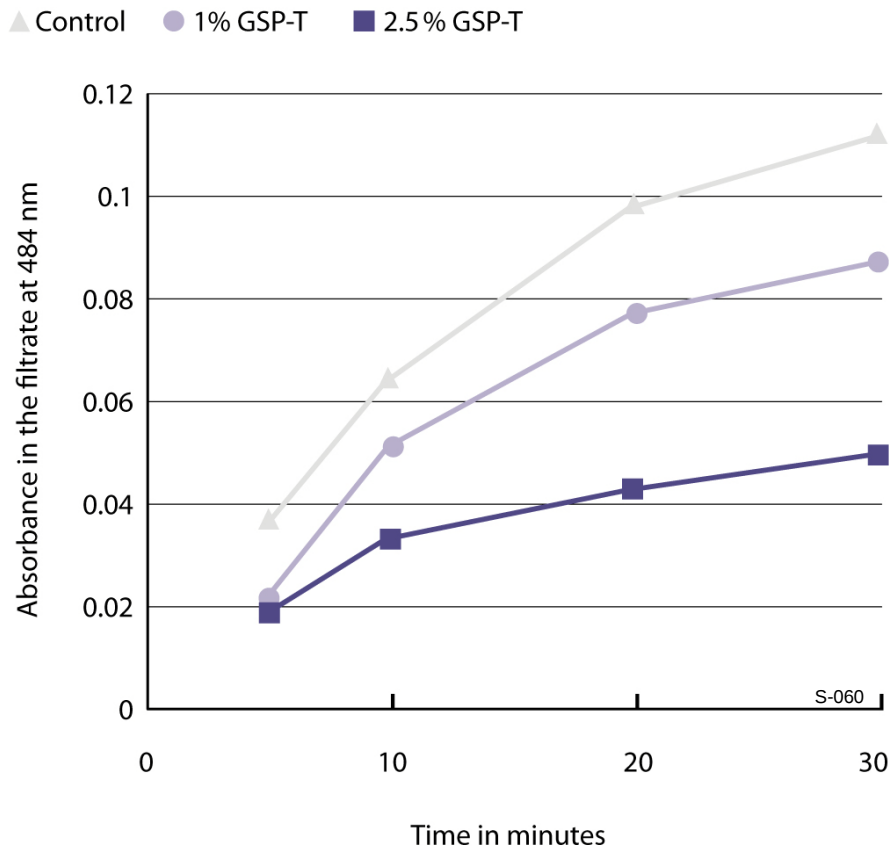


1. Pre-treatment of hair samples with a conditioner containing different concentrations of GSP-T.
2. Rinsing and drying of hair (hair-dryer).
3. Wetting (water spray) and drying (hair-dryer) of hair was repeated 5 times.
4. Washing hair with a 2% SDS solution
5. Filtration of hair
6. Determination of the concentration of proteins in the filtrate



Even in a **rinse-off formulation** (conditioner) GSP-T decreased hair damage in a dose-dependent manner

Reduction of Hair Color Fading

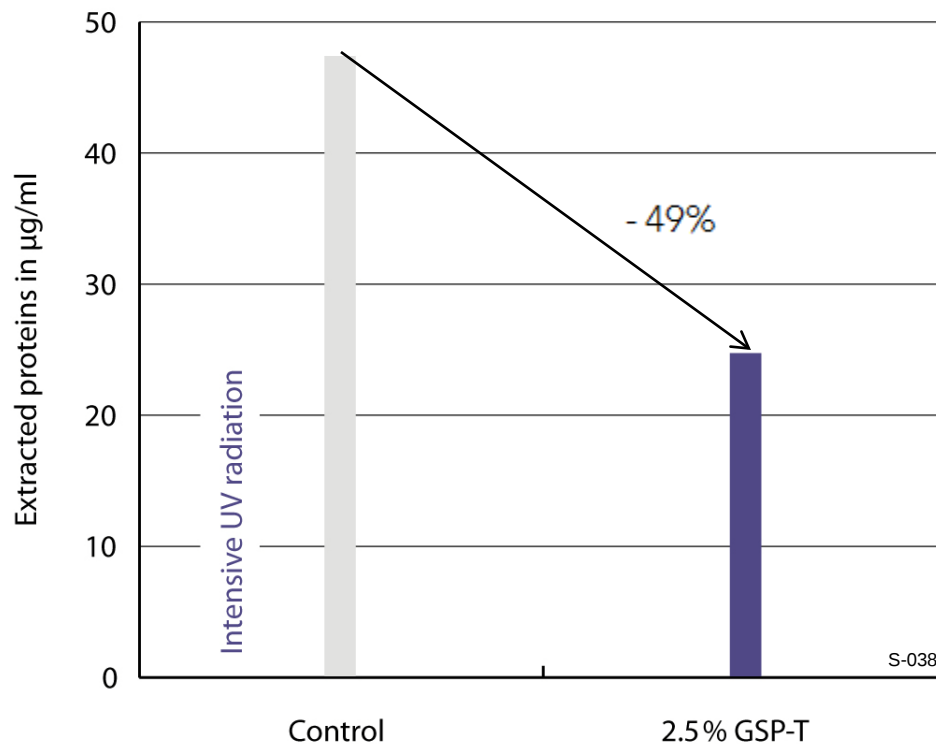


1. Hair samples were dyed with a commercial red hair dye.
2. Incubation with different concentrations of GSP-T in water, stirred for 10 minutes.
3. Drying of hair samples (hair-dryer) and incubated in a water-diluted shampoo 5, 10, 20 or 30 minutes.
4. Filtration of hair, determination of released hair dye in the using a spectrophotometer (value for hair fading)



GSP-T strongly reduced hair fading in a dose-dependent manner (50% with 2.5% GSP-T)

Hair Protection against Intensive Sunlight



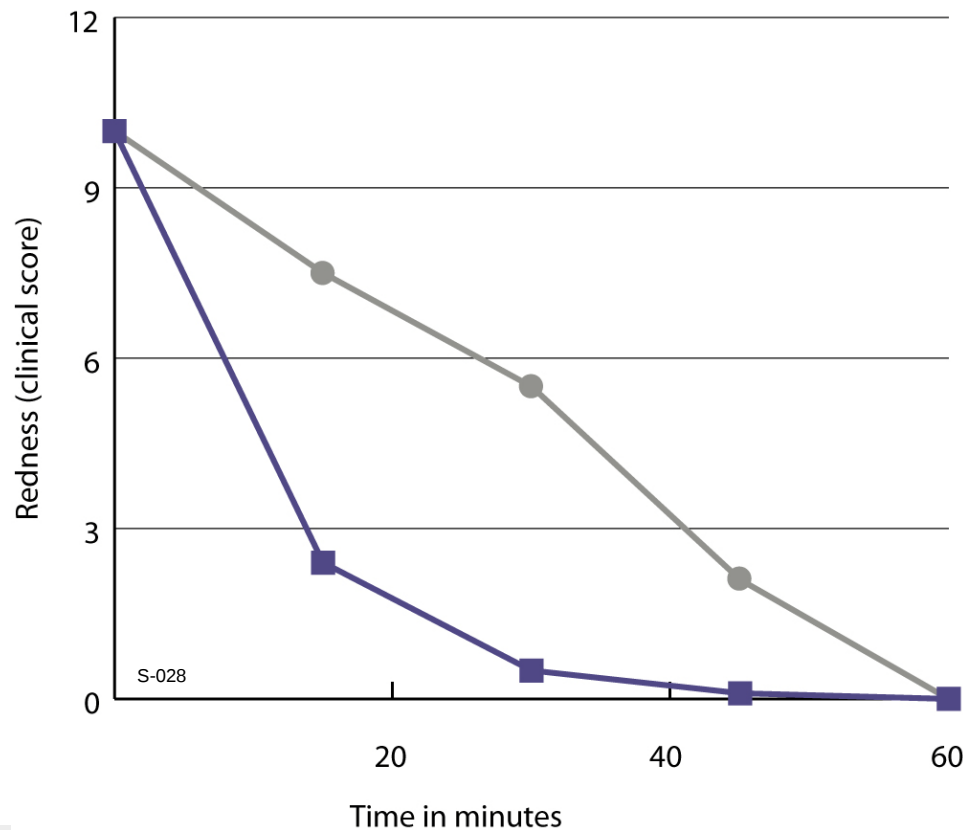
1. Treatment of hair with a leave-on fluid containing 2.5% GSP-T
2. Radiation with UV light (UVA+UVB)
3. Washing of hair with a 2% SDS solution
4. Filtration of hair
5. Determination of the concentration of proteins in the filtrate



2.5% GSP-T reduced the UV-induced damage to the hair by 49%

Soothing Effect

● Placebo ■ 2.5% GSP-T



Volunteers: 20 (18 to 50y)

Treatment: Application of diluted solution of soda on the inner side of the forearms

1. Scoring of skin redness (dermatologist)
2. Application of an emulsion containing 2.5% GSP-T or a placebo
3. Scoring of skin redness at different time intervals.



GSP-T significantly soothed the irritated skin → GSP-T helps to protect and soothe the scalp in applications that relax, perm or color hair

Composition

Grape Seed Extract	85%
Tocopherol	5%

INCI/CTFA

Vitis Vinifera (Grape) Seed Extract (and) PEG-40 Hydrogenated Castor Oil (and) Tocopherol (and) Glycerin (and) Alcohol (and) Aqua/Water

GSP-T

Claim Ideas



- Shields hair against daily stress factors
- Locks in color, resists fading
- Prevents damage due to heat-styling
- Helps to rebalance the scalp

GSP-T in Hair Care Applications



- Leave-on and rise-off formulas
- Styling products
- Treatments for sensitive scalp
- Outdoor ranges
- Color protection products

GSP-T

Marketing Benefits



- Protecting effect in both leave-on and rinse-off products
- 3 in 1: hair protection – color guard – soothing
- Patented for the protection of hair against hair-dryer, stress and treatments