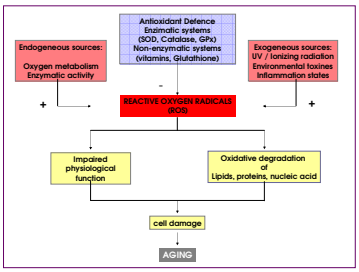
GEMATRIA TEST LAB

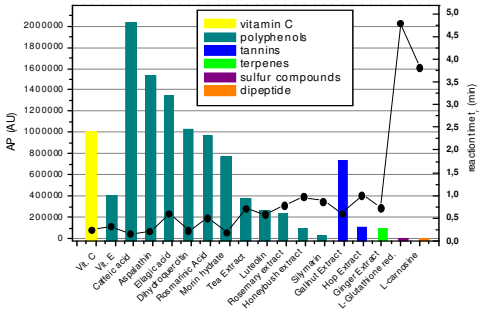
THE ANTIOXIDATIVE POWER AP of NATURAL ACTIVES and their EFFECT on SKIN and HAIR

How active are biocosmetic ingredients ?

The Role of Free Radical Injuries in the Aging Process

Free radicals are involved in a manifold of physiological processes. The disbalance of the radical status may lead to important physiological injuries and is mainly responsible for ageing processes.
The most important defence systems against free radicals are antioxidants. The qualitative and quantitative determination of antioxidative activity in vitro and of the antioxidative activity inside skin and hair is our main field of interest. The herein presented methods may help to characterize cosmetic products in respect to their antioxidative potential and to find solutions for improving the efficacy and stability of final products.





Are the differences between antioxidants measurable ?

The AP method allows to quantify both the reaction capacity as well as the reactive velocity of an antioxidant towards free radicals.

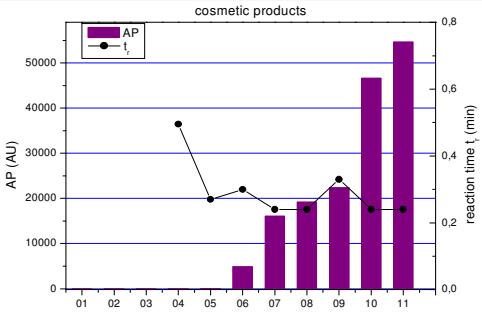
Different classes of antioxidants with different reaction mechanisms against free radicals show dramatic different AP values.

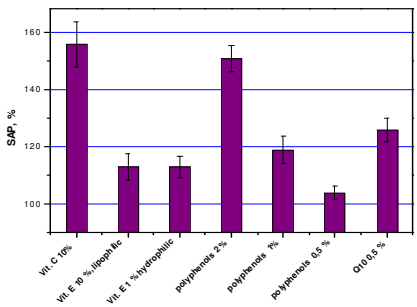
The AP values (bars) and reaction times (scatter) of several important antioxidants are reported.

Highly reactive antioxidants can be formulated into cosmetic products ?

To obtain final products with high AP values, the antioxidant raw material should be selected carefully. It has to be reactive against free radicals and stable enough to avoid oxidation processes inside a cosmetic formulation.

The example shows AP (Antioxidative Power) values and reaction times of commercial available cosmetic products (skin and hair care) containing vitamins C and/or E. Differences are due to different concentration and stabilization of the actives.





How active are antioxidants inside the skin ?

To be efficient an antioxidant :
- has to penetrate into the epidermal layer of the skin;
- must remain able to neutralize free radicals over a certain period.

The SAP (Skin Antioxidative Power) method allows to quantify the activity of topically applied antioxidants inside the skin.
Not only the quality of the raw material but also the formulation processes are decisive for an end product with a demonstrable high efficacy against free radical injury.