

Oxidative Stress - Trigger of Cutaneous Degenerative Processes; Modulation with Active Principles from *Aesculus Hippocastanum*, *Calendula Officinalis* and *Vitis Vinifera*

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Abstract

The endogenous contribution of natural antioxidants corrects the redox imbalance by mediating the evolution of the disorders caused and/ or stimulated by the oxidative stress. The plant extracts contain natural antioxidants with a role in radical detoxification, constituting valuable resources in the pharmaceutical and cosmetic industry. Compounds such as alkaloids, flavonoids, tannins, terpenoids, saponins, phenolic derivatives, are involved in different phases of the skin healing process through modulation of anti-inflammatory, immunomodulatory, antiviral, or tissue remodeling mechanisms. Our research was carried out in order to highlight a cumulative antioxidant action, on multiple cellular pathways, for the compounds of *Calendula officinalis* (marigold) -Gb and *Aesculus hippocastanum* (chestnut) -C in combination with the extract of grape marc (*Vitis vinifera*) - TES. The study of two relevant cell lines, HaCaT (normal human keratinocytes) and HS27 (human dermal fibroblasts), was considered. Cells were differentially stimulated for in vitro modeling of proinflammatory conditions representative of bacterial invasion (with LPS - bacterial lipopolysaccharide) and pro-oxidative inflammation (PMA- forbolmyristat acetate) respectively. It was highlighted the role of plant extracts in maintaining cellular resistance against oxidative stress interfering in enzymatic cascades and counteracting the attack of oxygenated free radicals (elimination of O₂⁻ anions and H₂O₂ decomposition). The results also confirm the synergism of action of the active compounds tested, directing the researches towards the development of topical use product with skin regenerative effect.

Keywords: antioxidant, grape marc, *Calendula off.*, *Aesculus Hipocastanum*, *Vitis Vinifera*