COSMECEUTICALS

NPARR 1(1), 2010-06, Cosmeceuticals and silibinin

Cosmeceuticals are used for nourishing and improving the appearance of the skin and are also documented as effective agents for treating various dermatologic conditions. Cosmeceutical preparations from herbal origin are most popular among consumers because these agents are mostly nontoxic and possess strong antioxidant activity. Because oxidative stress is one of the major mechanisms for skin ageing and dermatologic conditions, phytochemicals with proven antioxidant activity, such as silibinin, could be useful for treating many dermatologic conditions as well as skin ageing. Silibinin is a flavonolignan compound from Silybum marianum Gaertn. (milk thistle plant) that possesses strong antioxidant activity and also modulates many molecular changes caused by xenobiotics and ultraviolet radiation to protect the skin. This contribution reviews the evidence generated from laboratory studies to support the scientific rationale for the effective use of silibinin in cosmeceutical preparations [Rana P Singh and Rajesh Agarwal (Cancer Biology Laboratory, 104 School of Life Sciences, Jawaharlal Nehru University, New Delhi 110067, India), Clinics Dermatol, 2009, 27(5), 479-484].

NPARR 1(1), 2010-07, Traditional uses of plants in the Eastern Riviera (Liguria, Italy)

The aim of the present study was to explore the traditional plant knowledge of a zone of the Ligurian coast, known as Riviera spezzina (RS), Eastern Liguria, Italy. Traditional cosmetic uses of plants concerns hair lightening or staining (Urtica and Hedera leaves or Juglans mallow), or the treatment of dandruff (Castanea leaves) and lice (Lupinus seeds). Topical application of sap from grape shoots is indicated to strengthen the hairs. Umbilicus rupestris leaves are used to heal feet calluses, while the aerial parts of Clematis and Rubus are recommended to prepare refreshing baths for feet [L Cornara, A La Rocca S. Marsili and M.G. Mariotti (Polo Botanico “Hanbury”, Dip. Te. Ris., Università degli Studi di Genova, C.so Dogali 1M, 16136 Genova, Italy), J Ethnopharmacol, 2009, 125(1), 16-30].

NPARR 1(1), 2010-08, Effect of green Coffea arabica Linn. seed oil on extracellular matrix components and water-channel expression in in vitro and ex vivo human skin models

Coffea arabica Linn. seed oil is being widely used in cosmetic formulations, although its effects on human skin cells are not clear and most observations are unpublished. In this study, the in vitro effects of green coffee (C. arabica) oil (GCO) on the synthesis of collagen, elastin, and glycosaminoglycans (GAG) and in the release of transforming growth factor-β1 (TGF-β1) and granulocyte-macrophage colony-stimulating factor (GM-CSF) by human skin fibroblasts was evaluated. The ability of GCO to increase aquaglyceroporins-3 (AQP-3) mRNA expression in cultured keratinocytes and human skin explants was also investigated.

Human fibroblasts were incubated for 48h with several GCO concentrations (3.12, 6.25, 12.5, 25.0 and 50.0mg/ml). The levels of growth factors and extracellular matrix compounds in the culture supernatant were measured using commercial kits. To evaluate AQP-3 relative expression, using real-time reverse transcription polymerase chain reaction, keratinocytes were incubated for 3–6h with the GCO optimal concentration of 25.0mg/ml. Histological sections of human skin were also incubated with GCO (25.0mg/ml) and immunostained by antiserum against AQP-3. The results demonstrated that incubation with GCO produces a dose-dependent stimulation in the synthesis of collagen, elastin, and GAG, in addition to increasing the release of the growth factors TGF-β1 and GM-CSF. GCO also induced the expression of AQP-3 mRNA, which reached levels up to 6.5-fold higher than those of the control cultures. Thus, GCO might improve physiological balance in the skin, allowing the formation of new connective tissue and preventing epidermis dryness by increasing AQP-3 levels. Taking into account the limitations of in vitro studies, it is encouraging in this context to consider CGO as an
adjuvant to be used in dermocosmetic formulations. Clinical studies are in progress aiming to further investigate the protective effects of CGO in the skin [Maria Del Carmen Velazquez Pereda, Gustavo de Campos Dieamant, Samara Eberlin, Cecília Nogueira, Débora Colombi, Luiz Claudio Di Stasi and Mary Luci de Souza Queiroz (‘Department of Pharmacology/Hemocenter, University of Campinas, Campinas, Brazil), J Cosmetic Dermatol, 2009, 8(1), 52-68].

NPARR 1(1), 2010-09, Eating chocolate can significantly protect the skin from UV light

Cocoa beans fresh from the tree are exceptionally rich in flavanols. Unfortunately, during conventional chocolate making, this high antioxidant capacity is greatly reduced due to manufacturing processes. This study was carried out to evaluate the photoprotective potential of chocolate consumption, comparing a conventional dark chocolate to a specially produced chocolate with preserved high flavanol (HF) levels. A double-blind in vivo study in 30 healthy subjects was conducted. Fifteen subjects each were randomly assigned to either a HF or low flavanol (LF) chocolate group and consumed a 20g portion of their allocated chocolate daily. The minimal erythema dose (MED) was assessed at baseline and after 12 weeks under standardized conditions. In the HF chocolate group the mean MED more than doubled after 12 weeks of chocolate consumption, while in the LF chocolate group; the MED remained without significant change. Thus the study demonstrated that regular consumption of a chocolate rich in flavanols confers significant photoprotection and can thus be effective at protecting human skin from harmful UV effects. Conventional chocolate has no such effect [Stefanie Williams, Slobodanka Tamburic and Carmel Lally (‘Cosmetic Science Group, School of Management and Science, London University of the Arts, London, UK), J Cosm Dermatol, 8(3), 169-173].

NPARR 1(1), 2010-11, Biosynthesis and synthesis of natural colours- Review article

In nature, the detection of colours requires an organism having some type of eye with a retina and two or three types of photoreceptor connected to a nervous system, which can interpret the signals received. Evidence that certain simple organisms were coloured 1 billion years ago and some more advanced creatures, which could have possessed eyes a few hundreds of million years ago, is exemplified. A vast array of chemicals essential to life are produced by living organisms and their biosynthesis depends upon individual genetic patterns, which determine the enzyme catalysts involved. Plants photosynthesise many pigments, which are essential for them to maximise the absorption of energy from the sun, while others offer protection from any harmful radiation. Such pigments, for example chlorophylls and the carotenoids, flavonoids and betalains, have traditionally been used as natural dyes, food colorants and medicines. This review compares...