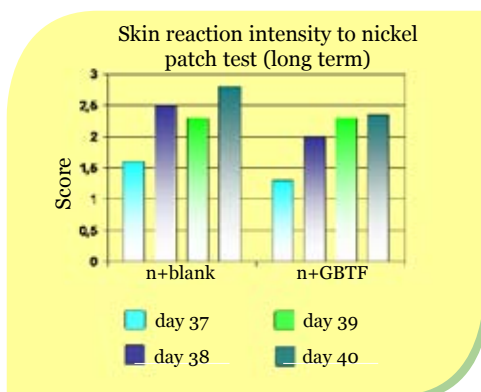
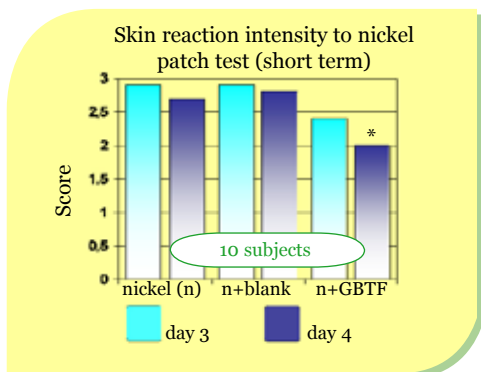




Ginkgo Biloba Terpenes Phytosome®

Soothing and anti-inflammatory

Proven efficacy on humans



A study¹ was undertaken to evaluate the activity of Ginkgo Biloba Terpenes Phytosome® against a situation of allergic contact dermatitis in human volunteers. Ten women (aged 19-56 years), presenting a positive response to nickel (nickel sulphate 5% in mineral oil, applied in occlusive patches) have been selected and treated daily on their arms with a gel containing 1.5% of Ginkgo Biloba Terpenes Phytosome® (on one arm) and blank formulation (on the other arm). After three and four days, the reactions of the response to nickel were scored (from 0 to 3 according to International Contact Dermatitis Research Group quotation).

Results showed a statistically significant reduction of the skin reaction intensity.

After a long term treatment over forty days¹, the scoring of the response to nickel has been repeated, and the trend toward a reduction of the inflammatory response has been confirmed. Allergic contact dermatitis is a complex phenomenon in which the skin immune system is involved, particularly immunocompetent Langerhans cells that trap the antigens and initiate an immune response by stimulation of specific T-cells and keratinocytes that produce cytokines.

Usually, allergic contact dermatitis is expressed as erythema, oedema and itching.

Ginkgo Biloba Terpenes Phytosome® was shown to be effective on soothing individual contact reactions to other substances contained in topical formulations.

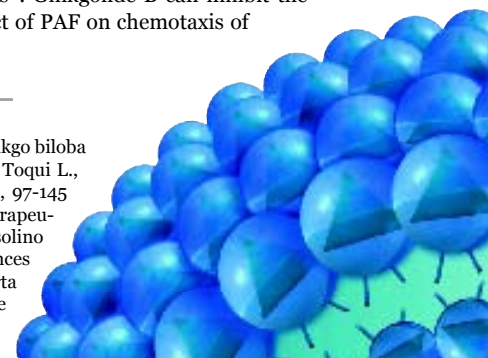
Mechanism of action

Studies demonstrated that ginkgolides are specific and potent antagonists of Platelet-Activating Factor (PAF), an inflammatory autacoid that is produced by, and acts on, a wide variety of cells². They inhibit the binding of PAF to its platelet membrane receptor, and as ginkgolides do not interact with any other known receptor, their effect is highly specific.³

Ginkgolides have a protective effect in various forms of airway hypersensitivity such as PAF-induced bronchoconstriction and airway hyper-reactivity in animal, and antigen-induced bronchial provocation tests in asthmatic patients.³

Recent studies with Ginkgolide B have demonstrated that PAF can modulate various immune processes. PAF can amplify immuno-inflammatory processes by priming cell responses and by modulating the activity of various cytokines⁴. Ginkgolide B can inhibit the suppressive effect of PAF on T-lymphocytes proliferation and cytokines production and the effect of PAF on chemotaxis of human eosinophils and neutrophils.⁵

1. Cristoni A., Di Piero F., Guglielmini G., Giori A., Morazzoni P.: "Soothing activity of terpenoid fraction of Ginkgo biloba and of its phospholipidic complex" - Proceedings of 22nd IFSCC Congress, Edinburgh, 2002 - 2. Braquet P., Toqui L., Shen T.Y., Vargaftig B.B.: "Perspectives in platelet activating factors research" - Pharmacological reviews 39, 97-145 (1987) - 3. Braquet P., Hosford D.: "Ethnopharmacology and the development of natural PAF antagonists as therapeutic agents" - Journal of Ethnopharmacology 32, 135-139 (1991) - 4. Braquet P., Braquet M.P., Bourgain R.H., Bussolino F., Hosford D.: "PAF/cytokine autogenerated feed-back networks in microvascular immune injury: consequences in shock ischemia and graft rejection" - J lipid Metabol 1, 75-112 (1989) - 5. Pignol B., Henane S., Mencia Huerta J.M., Rola Pleszcynski M., Braquet P.: "Effect of PAF and its specific receptor antagonist BN 52021 on IL1 release and synthesis by rat spleen adherent monocytes" - Prostaglandins 33, 931-939 (1987) - 6. Internal report: 7458-M-03999 - 7. Internal report: 7731/T/7174/2000 - 8. Internal report: 7456/t/018/2000



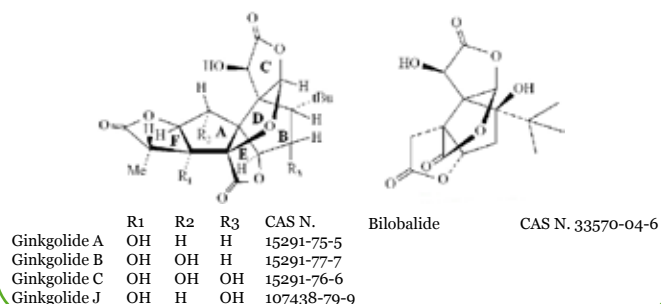
Ginkgo Biloba Terpenes Phytosome®

Safety Data

No reverse mutation in *Salmonella typhimurium*⁶.
Not sensitizing on skin (guinea pig)⁷.
Not irritant on eye (guinea pig)⁸.

Characteristics

General GBTP structures of Ginkgolides and Bilobalide



Ginkgo Biloba Terpenes Phytosome®

HPLC Content: over 30% of total ginkgoterpenes with reference to the anhydrous and solvent free substance
Form: light-brown powder, odorless
pH: not applicable (insoluble in water)
Stability: retesting date at 24 months
Level of use: up to 1.5%
Solubility*: soluble in ethoxydiglycol, polyisoprene, C12-15 Alkyl Benzoate, triticum vulgare (wheat germ oil), paraffinum liquidum (mineral oil), isopropyl myristate, C10-18 triglycerides, caprylic/capric triglycerides

Available Documentation

Botanical Certificate
Method of analysis
References Standard
Declaration GMO free
Safety Data Sheet
Stability data
Published literature
Confidential documentation

* 50 mg of Ginkgo Biloba Terpenes Phytosome® in 10 g of solvent at 40°C

Formulation examples

O/W Fluid Soothing Emulsion with Ginkgo Biloba Terpenes Phytosome®

GINKGO BILOBA TERPENES PHYTOSOME®	1.5%
Methyl Glucose Sesquistearate	5.0%
Petrolatum	5.0%
Oleyl Erucate	5.0%
Cetyl Ethylhexanoate	3.0%
Glycerin	2.0%
Cera Alba	2.0%
Behenyl Alcohol	1.5%
Dimethicone	0.5%
Imidazolidinyl Urea	0.3%
Tocopherol	0.2%
Xantan Gum	0.1%
Ascorbyl palmitate	0.1%

Methyl Chloroisothiazolinone (and) Methyl Isothiazolinone	0.05%
Disodium EDTA	0.10%
Purified Water	as needed to 100

Also suitable for

Soothing products (gels, emulsions and gel-emulsions)
Anti-redness products (gels, emulsions and gel-emulsions)
Anti-allergic products (gels, emulsions and gel-emulsions)

Formulation Tips

The physico-chemical characteristics of Ginkgo Biloba Terpenes Phytosome® and its ready dispersibility in water and oil virtually pose no limitations to the preparations of cosmetic formulations. Ginkgo Biloba Terpenes Phytosome®, dispersed in aqueous phase by a homomixer or a turboemulsifier, is suitable for incorporation into monophasic and biphasic systems at a temperature lower than 40°C in order to avoid thermal stress that might damage the phospholipidic chain.

Did you know...

Ginkgo biloba is considered as a living fossil, as it is the only survivor of a species originated 150 million years ago: as the tree defended itself throughout the centuries, it is in its components that modern science has identified the reasons for this immutability. The standardized extract from Ginkgo biloba leaves contains flavonoids and unique terpenoids such as ginkgolides and bilobalide, which have been observed to be potent inhibitors of the pro-inflammatory PAF (Platelet Activating Factor); this property is related to the soothing efficacy of the terpenoid fraction, and its complexation with phospholipids (Ginkgo Biloba Terpenes Phytosome®) is therefore recommended for the topical application in dermatitis conditions.

TRADE NAME	INCI (CTFA)	INCI (E. U.)	EINECS N.	CAS N.	INDENA CODE
Ginkgo Biloba Terpenes Phytosome® (IDN 5381)	Phospholipids (and) Ginkgo biloba Leaf Extract	Phospholipids	232 - 307 - 2	8002 - 43 - 5	9033015
		Ginkgo biloba Extract	289 - 896 - 4	90045 - 36 - 6	