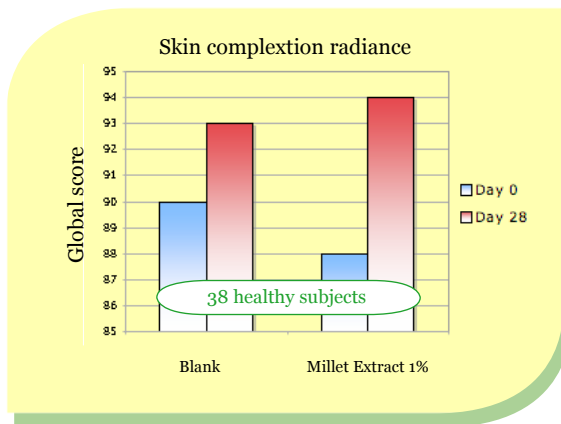




Millet extract

Skin, hair and nail restructurant

Proven efficacy on humans



The effects of topically applied O/W emulsion containing 1% of Millet extract have been evaluated in 38 healthy female volunteers¹. The volunteers applied either the Millet extract containing emulsion or the blank formulation once a day for 4 weeks, replacing their usual facial product.

The results of skin complexion variations have been evaluated by sensory assessment by a trained jury of five people, who evaluated a number of parameters, among which the most interesting were: uniformity of skin complexion, tonicity of the skin, size of pores (related to a thinner grain of the skin) satin-like skin aspect and color.

The global score increased in 13 out of 19 (68.4%) volunteers of the millet extract group, with an average score increase by 7%.

The improvement in skin complexion radiance, compared to the blank group, is statistically significant.

The effect of hydro-lipidic barrier protection has been evaluated by measuring TEWL variations². TEWL (Trans Epidermal Water Loss) measurement depends on the integrity of the skin's barrier function. The test on Millet extract was conducted on 15 healthy volunteers; TEWL measurements were taken after stripping, then the volunteers topically applied a Millet extract containing emulsion (at 1%) on one forearm and the control emulsion on the other. New TEWL measurements were performed at 1 and 2 hours from product application.

In 60% of the volunteers a restructuring effect of lipid barrier was observed after a single standardized application, and the Millet extract containing emulsion showed a good restructuring effect: TEWL decreased by 10% one hour after product application.

Millet extract 1% containing emulsion also showed slight hydrating properties when tested on 15 volunteers³.

Mechanism of action

Millet is high in proteins and has significantly more iron and silicon than other cereals. It is gluten free and very rich in amino acids, phosphorus and B vitamin. Its content of mineral salts, vitamins, unsaturated fatty acids exerts a trophic activity on skin and cutaneous annexes (hair and nails). Hair and nails, in fact, are mainly constituted by keratin, a protein containing 18 amino acids. Aminoacids and polyunsaturated fatty acids are necessary to the formation of keratin. Millet as a supplement and by topical application is thus considered as "antistress" and "beauty food" due to its stimulating properties on skin, hair and nails.

1. Internal Report: Study report 1020245/1/2002 - 2. Internal Report: Study report 1020245/2/2002
- 3. Internal Report: Study report 1030108/2002



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Safety Data

The use of Millet extract in the tests performed showed the complete absence of side effects as localized erythema or any kind of discomfort. In all the trials conducted to date, Millet extract exhibited an excellent tolerability.

Characteristics

Millet extract	Available Documentation
GPC content of total fatty acids: 3-4% Form: brown crystalline powder Level of use: 0.5% - 2% Odour: characteristic pH: not applicable (not soluble in water) Solubility: dispersible in lipidic phase	Botanical Certificate Method of analysis Reference Standard Declaration GMO free Safety Data Sheet Confidential documentation

Other qualities of Millet extracts are available at Indena - Millet extracts may have different fatty acids content, may contain methionine, and may even be created on a customized basis - ask Indena for details

Formulation examples

O/W emulsion with Millet extract				Formulation advice
MILLET DRY EXTRACT	1.00%	Phenoxyethanol	0.50%	Millet extract is particularly suitable to be associated with essential amino acids, such as, for example, methionine. Millet extract is dispersible in lipidic phases suitable for cosmetic emulsions, so it is recommended to prepare the lipidic phase, heat it up at 70°C prior to dispersing Millet extract into it.
Glyceryl stearate	5.00%	Imidazolydinil urea	0.30%	
Glyceryl stearate (and) PEG100 stearate	5.00%	Methylparaben	0.20%	
Cethyl alcohol	5.00%	Tocopherol	0.10%	
Caprylyl/Capric triglycerid	5.00%	Disodium EDTA	0.10%	
Squalane	5.00%	Purified water	as needed to 100	
Glycerin	3.00%	Also suitable for		
Polisorbate 20	3.00%	Restructuring creams		
Dimethicone 350	1.00%	Anti hair loss lotions		
		Nail care products		

Did you know...

Millet is one of the oldest foods known to humans, one of the first cereal grain used for domestic purposes. Mentioned in the Bible, it sustains today one third of the world's population, being a significant part of the diet in various Asian regions. The sign for millet is common in Chinese writing, where the signs for "millet" and "mouth" put together mean "good".

TRADE NAME	INCI (CTFA)	INCI (E.U.)	EINECS	CAS	INDENA CODE
Millet Dry Extract	Panicum miliaceum (Millet) Seed extract	Panicum miliaceum Seed Extract	290 - 125 - 9	90082 - 36 - 3	36MJF2090