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A new vegetable surfactant. A green surfactant

The cosmetic market is one of the most dynamic and innovating worldwide. Consumer needs stimulate the continuous evolution of formulas. The new trend is towards natural, safe and evaluated products

Young consumers particularly like natural cosmetics with raw materials extracted from vegetable sources and coming from traditional or ethnical uses.

Among cosmetic ingredients (more than 10,000), surfactants are the most important ingredients for hygiene products (skin and hair washing).

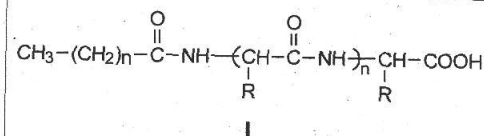
ORIGIN AND PROPERTIES

The *Olivoil glutinate* is a new, patented vegetable surfactant, combining the very

exceptional fatty acid profile of Mediterranean olive oil (around 85% of unsaturated fatty acids and vitamin E) with vegetable proteins, extracted from wheat by gluten hydrolysis. The gluten corresponds to the proteinic part of the wheat and is the nitrogen reserve used by seeds during germination for growth and cell multiplication. The nitrogen group is also an important substantivating agent for hair conditioning and restructuring. Essential fatty acids and proteins allow to achieve a new molecule having interfacial properties and assuring a perfect compatibility with the human body (experimented high tolerance for skin and high substantivity for hair) and with the environment (high biodegradability).

CHEMICAL PROFILE

From condensation reaction between the amino group of the hydrolyzed wheat proteins and the carboxyl group of the fatty acids of olive oil, it is possible to prepare an amide showing the surfactant's structure I.



The *Olivoil glutinate* is based only on vegetable molecules with a complete absence of chemical impurities (no ethylene oxide or sulphate) (Table I).

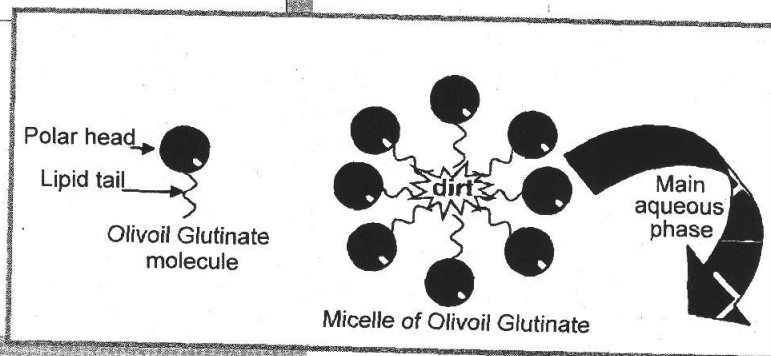
The chemical structure of *Olivoil glutinate* shows a strong potentiality as a middle detergent for bath, shampoos and personal hygiene cosmetics, with an interesting dirt removal mechanism (Figure 1). The fatty acid part (unsaturated fatty acid) have a strong affinity with lipophilic compounds. The grafted peptides, very polar, have a strong affinity for the aqueous components.

The dirt is completely removed from the skin that results clean, smooth, hydrated, without tension and irritation.

Table I - Typical product characteristics

INCI name	Hydrolyzed Wheat Protein Oliviate
CAS number	68188-38-5
EINECS number	Not applicable
Aspect	solution
Color	yellow
Odour	slight, typical
Dry matter:	> 26 %
pH (at 10° in water/ethanol 75/25)	7 ± 0,5
Viscosity (25°C, mPs)	500
Boiling point	> 100°C
Flash point	> 100°C
Water solubility	soluble

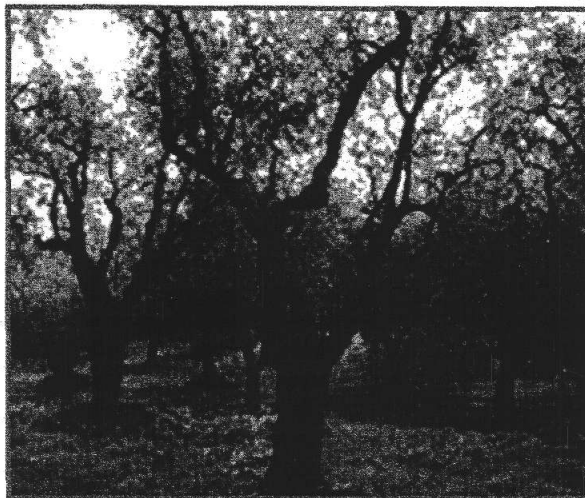
Figure 1- Mechanism of the dirt removal activity of the *Olivoil glutinate*



COSMETIC USES

The green surfactant from olive oil and gluten proteins is a new generation of raw materials for rinse-off personal washing products. It is a surfactant, with all properties of anionic (foam, cleansing activity, easy way to formulate, stability at large pH range) but with an excellent skin feel. The cleansing mechanism is very mild for the skin and for the environment: an example of new generation of natural cosmetic products.

When used in rinse-off products, the consumers report that their skin feels supple, soft and clean, the hair lustier, healthier and easier to comb.



BODY PRODUCTS

The good cutaneous tolerance of the *Olivoil glutinate* permits to qualify it as a gentle surfactant, while the strong detergent and foaming abilities remain. It is particularly adapted to formulate, as primary surfactant, bath products and shower gels. Particularly for after sun shower gels, when the skin is very sensible and irritated.

Another important need for a personal detergent is to clean the aged skin which is very thin, reactive, rugged and dry. For elderly people, the use of natural detergent, such as *Olivoil glutinate*, keeps the skin smooth and hydrated.

SKIN DETERGENTS

The perfect biocompatibility and the detergency action make this product an ideal surfactant to formulate face cleansers, anti-acne products and make-up remove lotions at physiological pH (5.5-6.0), for normal, dry and sensitive skin.

HAIR DETERGENTS

With lipoaminoacids as secondary surfactant (they are compatible with anionic, amphoteric and cationic surfactants), it is possible to formulate a large range of shampoos (anti dandruff, for dry hair, for chemical treated hair, daily shampoos, baby shampoos) with a good detergent and conditioning activity, from acid to neutral.

SAFETY PROFILE

Lipoaminoacid surfactants are non-comedogenic, biodegradable, and are non toxic for the environment.

The irritation tests (modified Draize tests) on the panel of volunteers with application of the concentrated product on the skin areas, declared that the product is non irritating.