Xalifin-15 and thermal waters

SKIN HEALING PRINCIPLES OF THERMAL WATERS
USING STABLE AND EUDERMIC EMULSIONS

The dermatological properties of thermal waters have recently been re-evaluated and brought to the attention of the demanding users of functional cosmetics. By means of a simple technique, and with the help of Xalifin-15, it is possible to obtain active, stable, non greasy, highly penetrable emulsions.

Xalifin-15, which is already well known for its emulsifying properties, allows us to produce stable emulsions, even when starting from a continuous phase, i.e., water, provided that it is highly saline. This leads to the formation of an emulsion which, although not refined by further homogenization, cools at room temperature and results in a stable product.

One hundred kilos of this cream are produced with 15-20 Kg of Xalifin-15 and 85-80 Kg of thermal waters. Therefore, 80% of the resulting solid emulsion is made up of an active component, while the remaining 20% is made up of a bioemulgoid that also works as an excipient deep below the skin’s surface.

The emulsions that are obtained can safely be used on sensitive or irritated skin as well as on skin suffering from various dermatological conditions, and on the skin of babies which is often subject to local reactivity.

Therefore, the activity of the emulsion varies depending on the characteristics of the ther-
Xalifin-15 (Vevy codex 02.0151)
Xalifin-15 POB-free (Vevy codex 02.4590)

The first and innovative emulsifier non toxic for skin enzymes (Bioemulgoid).
An effective, powerful and safe answer to your emulsifying problems. With Xalifin-15 creams and lotions stay stable, even with the most difficult materials to emulsify.

Il primo emulsionante innovativo, non tossico per gli enzimi cutanei (bioemulgoide).
Una risposta sicura, potente ed efficace ai vostri problemi di emulsionamento. Con Xalifin-15 le creme e i latti rimangono stabili persino con le sostanze più difficili da emulsionare.

However, it must be kept in mind that the hydrotherapeutic activity of any given type of water cannot be assessed on the basis of its mineral content or on the quality of the mineral content alone. It is beyond a doubt that thermal water acts at skin level. The dermoe- tropic activity that many thermal waters themselves exert, even without any particular carriers, can easily be verified and not only empirically, and this activity cannot be solely attributed to the mineral content of these waters. We may therefore obtain emulsions that exert a more medicamentous action. The effects that some waters have on various conditions, such as itchiness, moist eczemas (some known thermal water sources are effective even in acute, chronic or relapsing eczema), neurodermatitis, plaque psoriasis, keratosis, follicular seborrheic dermatitis, puriginous chronic dermatitis occurring in those affected by arthritis or hyperuricemia, and a long list of others, is certainly well known. Similarly, lenitive, non-irritating cosmetologic emulsions can be prepared which would therefore be more broadly and freely available.

Xalifin-15 e acque termali
I principi dermocurativi delle acque termali veicolati con emulsioni stabili ed eudermiche
Le proprietà dermatologiche delle acque termali sono state recentemente rivalutate e portate all’attenzione dell’esigente utilizzatore di cosmetici funzionali. Attraverso una facile tecnica è possibile ottene-
La qualità di esso. È infatti fuori di ogni dubbio che esista un’attività a livello cutaneo delle acque termali. L’attività dermotropa che diverse acque termali, già di per sé, senza veicolanti particolari, esplicano, è un fatto ben ricontrabile non solo empiricamente, e non si giustifica pienamente con il solo contenuto minerale.

Potremo pertanto ottenere emulsioni ad azione più propriamente medicamentosa: sono note le azioni di certe acque nel prurito, negli eczemi umidi (alcune note fonti sono efficaci persino negli stadi acuti o cronici riacutizzati dell’eczema), nelle neurodermiti, nelle cheratosi, nelle dermatiti seborroiche follicolari, nelle dermatosi croniche pruriginose dell’artritico o dell’uricemico, e l’elenco non finisce certamente qui. Analogamente, possono essere preparate emulsioni di carattere cosmetologico, ad azione lenitiva, antiirritativa cutanea e dunque di maggior diffusione e di libero consumo.

ADF-oleile (Vevey codex 04.0196)
The first and effective viscosity decreasing and dethixotropic agent for emulsions. Viscosity controlling agent for the stability and texture of your O/W lotions. With ADF-oleile they will never turn into creams!

Il primo fluidificante e detissotropante efficace per emulsioni. Agente per il controllo della viscosità per la stabilità e la texture delle vostre emulsioni fluide O/A. Con ADF-oleile non torneranno più creme!

The role of fibronectin in the healing of a skin wound

The healing process of a skin wound is an ideal model to study fibronectin functions. New light was recently shed on the role of this glycoprotein in the sequence of events which enable reconstitution of a wounded tissue, skin in this case. This further supports the dermopharmaceutic as well as cosmetic use of Dermonectin, as a fibronectin-stimulating factor. Fibronectin, one of the components of the clot which is formed in a wound, acts as chemotactical factor for monocytes. These cells are attracted by fibronectin fragments containing the domains which can bind to cellular surface proteins. It is similar to the activity of collagen and elastin fragments, but also stimulating fibroblast and endothelial cell movements. For its binding capacity, fibronectin probably coats the debris present in the wound, denaturated collagen molecules, DNA, fibrin and actin molecules, as well as bacteria, and enables phagocytosis by macrofages. Though not directly acting as opsonin or being provided by a very weak direct opsonizing activity, it boosts the action of other systems, such as the monocyte phagocytes process (activity which does not belong to collagen or elastin).

**Fibronectin Mechanism: a Receptor**

Fibronectin, by simultaneous interaction with cell surface and extracellular matrix components (such as collagen, heparin and fibrin) promotes migration of epidermal cells towards wound lips and fibroblasts and capillaries growth. Its role should be to provide a proper support for cell movement. Finally, it is deemed that fibronectin constitutes a warp for matrix formation and an essential support for the activity of myofibroblasts which determine wound contraction. The innumerable interactions between cells and fibronectin which take place during the healing of a wound prompted research on the receptors, located on the cell surface, which enable such interactions. One of them, with high affinity, was isolated,

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cloned and identified in many cell types. This fibronectin receptor belongs to the large family of integrins, glycoproteins consisting of an α chain of 142-180 kD and of a β chain of 95-130 kD. Such α and β chains are always assembled in the plasma membrane and have a large extracellular and a smaller cytoplasmatic domain. Depending on the specific α and β cells contained, integrins can bind to fibronectin, as well as to numerous other cells, such as collagen, laminin and vitronectin. The presence of fibronectin receptors was studied in the pig skin. Using specific antibodies for these receptors it was observed that, under normal circumstances, they are scarcely present in the epidermal basal cells, while they are more abundant at the level of hair follicle cells, of eccrine gland myoepithelial cells, of smooth muscle cells of hair erectors, of endothelial cells, of pericytes and vasal smooth muscle cells. During the wound healing process, when

Dermonectin (Vevy codex 18.1926)
The first effective oligomer precursor of fibronectin which, as such, really help in increasing skin firmness and resiliency

Il primo oligomero efficace precursore della fibronectina che, come tale, aiuta realmente ad incrementare la compattezza e l’elasticità cutanea

the granulation tissues have for-med, fibronectin receptors can be identified in fibroblasts, and the interaction between these cells and the extracellular matrix fibronectin was confirmed by electron microscopy studies. Subsequently, when the wound coarcts, this process is made possible by the complex which forms between fibronectin receptors and the fibrils of this protein, which, like a network, envelops fibroblasts and allows transmission of their contraction. In addition, the fibronectin receptors of integrin β chain are present in the migrant, basal and suprabasal cells of the epidermis, and this phenomenon is not limited to the wound, but also extends beyond its edges.

Fibronectin and its Receptors: an Active Intervention. Then, after reconstitution of a normal basal membrane, both fibronectin and its receptors decrease considerably, and their disappearance determines and confirms the hypothesis of their active intervention in the wound healing process. Concluding, even though the healing of a wound requires the coordinated occurrence of numerous and not yet completely discovered events, fibronectin and its receptors are likely to play the following two major roles:

1. they allow migration of epidermal cells which might use fibronectin receptors to move on the extra-cellular matrix rich in this glycoprotein;
2. they enable fibroblasts, through the network formed by the complex between fibronectin and its receptors on the surface of such cells, to cause contraction of wounded tissues.

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