An Active Complex to Provide Plant Derived Steroid Precursors to Compensate the Natural Deficit of Aged Skin and to Improve Skin Biophysical Parameters

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Abstract

Skin ageing is associated with a deficit of relevant biological precursors essential for maintaining a healthy skin. Reduction of hormonal status in middle-aged women brings physiological skin changes resulting in skin thinning and wrinkle formation. To replenish this hormonal deficit at the skin level, a complex of natural phyto-steroids (that are natural hormones precursors) derived from Soya beans and Wild Yam was formulated (commercial name Unisteron Y-50). This complex, when applied on mature skin of women volunteers, increased significantly parameters such as skin elasticity, smoothness and hydration and reduced wrinkle depth. Skin lipids were also dramatically stimulated, suggesting an improvement of barrier function. Anti-ageing formulations can strongly benefit from the addition of natural hormone precursors to improve skin appearance and functionality.

Introduction

During ageing our skin no longer provides sufficient amounts of certain substances, such as relevant biological precursors and activators that must be available to the skin cells to sustain natural metabolism. In particular, in middle-aged women, changes in the hormonal balance result in the lowering of the oestrogen and progesterone levels, which leads to skin changes associated with delayed cell division, reduced collagen production and increased degradation, with the end results of skin thinning and wrinkle formation.[1-3] Furthermore, decreased hormone levels lead to a reduction in the formation of the hydro-lipidic film that is essential for skin barrier functionality.[4-7] In turn, this reduces skin hydration and increases the skin's sensitivity to environmental stress.

In order to replenish this deficit in mature skin, we have formulated a complex rich in hormone precursors derived from plants. This complex (trade name: Unisteron Y-50), is a well-balanced combination of natural phyto-steroids which are obtained by a mild extraction process both from the non-saponifiable parts of native soya beans (glycine soya) (phytosterols, see Figure 1) and from the root of Wild Yam (Dioscorea villosa) (saponin, see Figure 2). Phytosterols are phyto-steroids with the basic structure of cholesterol. They are found in nearly all plant parts in varying concentrations. Relatively high concentrations occur mainly in vegetable oils, particularly in cereal seed oils. In combination with phospholipids, phytosterols are an important constituent of cell membranes.[8] Saponins such as diosgenin are precursors for steroid hormones, and they are abundant in the Wild Yam root.[9]

The phyto-steroids complex is incorporated into a skin-friendly carrier system composed of oleyl alcohol, which ensures optimum bioavailability of its active principles.

This complex supplies precursors for membrane lipids and steroid hormones helping support skin barrier integrity, cell turn-over and collagen production, thus reducing water loss, promoting skin elasticity and decreasing wrinkle formation.

Methods (*In Vivo* Efficacy Tests)

The phyto-steroid complex was introduced at 5% in an o/w cream (test cream) and compared to a placebo cream and to untreated. The creams were applied on the forearm and on the face of 20 female volunteers aged between 55 and 66 years old, twice daily (morning and evening). The measurements were taken before the first application of the creams on precisely defined areas on the inside of the forearm (skin lipids, skin elasticity, skin hydration and skin smoothness) and on the face (wrinkle depth). Further measurements were taken after the creams had been used for one, four and eight weeks, eight hours after the last daily application.

Skin elasticity was measured with the cutometer SEM 474, skin hydration was determined by capacitive means with the