Improving the Silhouette and Avoiding Surgery with Plant-based Lipofilling

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Abstract

While many cosmetic body care products aim at refining and slimming the silhouette of the consumer, by focusing on certain body parts (thighs, abdomen) and reducing the cellulite aspects of the skin to improve the firmness of cutaneous tissues via stimulation of the lipolytic processes in the hypodermal adipocytes, other demands from the market in facial and body care search for the opposite effect.

We have formulated a non-hormonal treatment to promote body volume with a lipofilling-like effect. Based on an Asian plant extract that stimulates the differentiation and proliferation of adipoctyes, and promotes the storage of lipids, this ingredient helps to enhance the volume of fatty tissue, leading to a more voluminous and shapely figure.

Introduction

Praised by poets or delicately disclosed by painters, the subject of dreams or temptation, the shapeliness of the breasts is the alpha and omega of femininity. Physical appearance is now a society phenomenon. It is important for women to take care of how they look.

For many years, being curvy was disapproved of, but nowadays women want sensuous curves and are seeking to remodel the contours of their décolleté and buttocks by bringing volume where it is needed. Female consumers, and in particular Asian women, try to shape their body according to the "brazilian shape".

The volume and shape of the breasts are determined by the quantities of glandular and adipose tissue that they contain, thus this fatty tissue is a potential target for amplifying the curvature of the breasts and restoring the shapeliness of the décolleté.

Our company has developed a natural active ingredient (Trade name: Volufiline™) based on sarsasapogenin, a plant derived molecule from the roots of the Asian botanical plant *Anemarrhena asphodeloides*, known as "Zhi Mu" in China, where it is in widespread use and devoid of hormonal activity. It has been discovered that it stimulates lipid synthesis in human adipocytes.

In order to satisfy female consumer needs, we investigated lipogenesis processes in adipocytes and demonstrated the mechanism of action of Volufiline™ in 3 points:

- Pre-adipocyte differentiation
- Adipocyte proliferation
- Lipid storage

Then the efficacy of Volufiline™ on enhancing body volume was assessed *in vivo*.

Mechanism of Action

First, we must review the anatomy and physiology of the breast.

During puberty, the female mammary gland changes profoundly and reaches its maturity after 3 to 4 years. The female breast consists of lactiferous ducts associated with lobes that are separated by connective and adipose tissue. The space between the skin and the mammary structure is very homogeneous and fat-filled, divided by the "milk line" or mammary ridge which holds the skin and gland together. The subcutaneous fat forms an external mantle over the mammary gland (outside of the glandular lobes and the interlobular fat) and its thickness varies.

Precursor cells in the mesenchyma influence the development of adipose tissue. Already present in normal or adipose tissue and under the influence of various hormonal messengers, they differentiate into competent pre-adipocytes. First, the cells divide actively and, after the growth phase they enter a differentiation phase in order to acquire all the functions of a mature adipocyte.

Profound changes in the activity of several genes provide the arresting of cell division and the triggering of differentiation.

In order to evaluate the activity of Volufiline™ on the adipocyte, three steps of fat installation were investigated using *in vitro* techniques.