ACNE, ROSACEA, AND RELATED DISORDERS (INCLUDING HIDRADENITIS SUPPURATIVA)

EFFICACY OF SILYBUM MARIANUM FRUIT EXTRACT IN INHIBITING SEBOGENESIS.

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Introduction: Acne is a chronic inflammatory disease of the pilosebaceous follicle. It involves several phases beginning with hyperproduction of sebum, followed by colonization by Cutibacterium acnes, comedogenesis, and subsequent inflammation. Hyperseborrhea is a critical step of acne development. Sebum is composed by the lipids synthesized by sebocytes and the cellular components of these cells released through a holocrine secretion.

Objective: To evaluate the effect of the newly patented anti-acne Silybum marianum fruit extract on the production and regulation of sebum components using two ultimate in vitro models.

Materials and methods: The compound was evaluated in two models (i) human sebaceous glands organ culture (HSGOC) and (ii) sebocytes derived from human induced pluripotent stem cells (ShiPS) and cultivated in a lipogenic environment. Lipids were quantified by fluorescence and other sebum components at mRNA and protein level.

Results: In the model of sebaceous gland survival HSGOC, Silybum marianum fruit extract, decreased sebum content by 25%, thus the same level compared to the reference molecule isotretinoin. In the ShiPS model Silybum marianum fruit extract decreased the expression (mRNA and protein level) of proteins implicated in lipid-storage and -degradation which prevented lipid accumulation. Thus, the compound, significantly decreased lipid accumulation by 90% in this model.

Conclusions: By regulating lipid metabolism, Silybum marianum fruit extract prevents lipid accumulation in two models of seborrhea. This contributes to the effects observed in patients with acne, and indicates that Silybum marianum fruit extract is a good candidate for the modulation of hyperseborrhea and associated disease.