



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.

