



NOP AGAVE FERMENT COLLAGEN PRODUCTION STUDY

207 LEXIA Inn Road, LINCOLN, NC 28092 USA T. 704.276.7100 F. 704.276.7101

Abstract

This study was designed to determine the effects NOP Organic Agave Ferment has on collagen I synthesis. Collagen I is a major component of the dermis and provides both structural support and elasticity to the skin. A series of in vitro tests were conducted using an amino acid deficient medium to determine the supplemental effects of NOP Organic Agave Ferment on collagen synthesis. Three dose levels were compared to a control and the results were determined using an ELISA assay. The findings indicate that all dose levels of NOP Organic Agave Ferment are effective for increasing collagen I synthesis, with the results being most effective for the 4% treatment. This indicates that NOP Organic Agave Ferment is capable of increasing collagen production in a dose dependent manner.

Materials and Methods

Human fibroblasts were grown to confluence in LongTM EGF (animal free fibroblast medium) and inoculated at a concentration of approximately 6,000 cells per dish. They were incubated in a humid atmosphere containing 5% CO₂ at 38°C for 24 hours. The cells were then removed and placed into an amino acid deficient medium, which was supplemented with NOP Organic Agave Ferment at concentrations of 1, 2 and 4%. The variable treatments were compared to a control that consisted of cells being cultured in an amino acid deficient medium with no additional supplementation. Fibroblasts then incubated for an additional 48 hours. Immunolabeling with primary and secondary antibodies (murine anti-collagen I monoclonal antibody and murine anti-IgG antibody) in a peroxidase/TMB substrate (3,3',5,5'-tetramethylbenzidine) visualization system. Results were calculated as follows:

$$\frac{(\text{NOP Organic Agave Ferment} - \text{Control})}{\text{Control}} * 100 = \% \text{ Increase in Collagen I}$$

Results

	Control	1% NOP Agave Ferment	2% NOP Agave Ferment	4% NOP Agave Ferment
Percent Increase	0.2	51	108	172

Table 1. Increase in collagen type I production.



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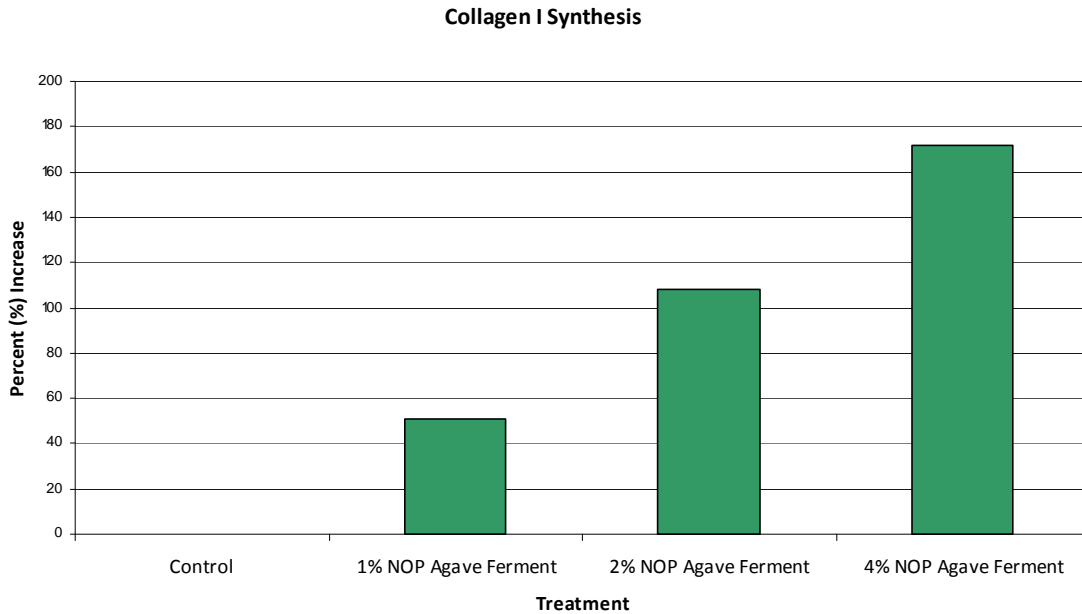


Figure 1. Results for increase in type I collagen production.

Discussion

The results indicated that NOP Organic Agave Ferment significantly increases collagen synthesis compared to the control. These findings suggest an increase in collagen production occurs in a dose dependent fashion with 4% NOP Organic Agave Ferment yielding the greatest results. This leads us to conclude that NOP Organic Agave Ferment can be used in topical applications to promote the production of collagen I.