

ACB Pumpkin Enzyme

Pumpkin Enzyme: Code Number 20201

INCI Name: *Cucurbita Pepo (Pumpkin)* Bioferment
Suggested Use Level: 1% – 10%
Applications: Exfoliation, Smoothing Fine Line, Softening

Pumpkin is widely used in many cultures as a food. One of the interesting properties of the *Cucurbita* Genus is that when the seeds are mature the plant begins a rapid self-degradation designed to provide a fertile environment for the seeds to develop.

As is common with many plants pumpkin contains its own set of proteases, the proteins which breakdown other proteins. By fermenting the pumpkin fruit with *Lactobacillus lacti* we are able to breakdown many of the complex biomolecules releasing isolated phytochemicals. Through the use of selective filtration techniques we are then able to further isolate the proteolytic fractions to produce our product.

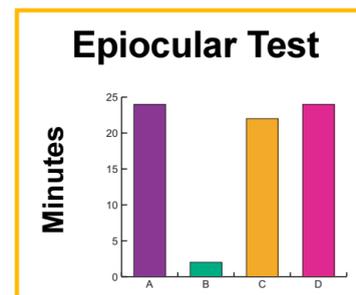
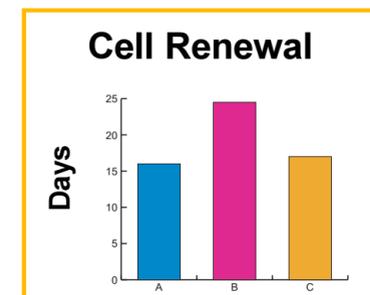
To verify the efficacy of our product we conducted a standard Dansyl Chloride Cell Renewal Study on human subjects.

Number of Subjects 12 (M/F ages 19 – 43)
Dansyl Chloride 5% Concentration in petrolatum
Test Materials A - Glycolic Acid 4% Aq. Soln.
B - Biological Control (untreated)
C - **ACB Pumpkin Enzyme** 5% Aq. Soln.



Most proteolytic materials such as AHA's or traditional enzymes such as papain or bromelain tend to be irritating on the skin. Much of the irritation is due to the over aggressive nature of these materials. Unlike traditional materials **ACB Pumpkin Enzyme** shows an uncommonly mild irritation profile in a Human Repeat Insult Patch Test (HRIPT).

Test Model Epiocular (*Mattek Corp.*)
Test Materials A - Glycerin USP
B - Triton X-100 1% Aq. Soln.
C - ACB Pumpkin Enzyme 10% Aq. Soln.
D - Untreated Control
Samples Tested 3x



Traditional Art, Modern Science

Fermentation is one of the oldest technologies used by different peoples and cultures throughout the world for food preservation. Products such as cheese, bread, and wine have been produced and consumed for thousands of years by various fermentation techniques. These types of food products are strongly linked to various cultures and customs. Fermented foods are produced throughout the entire world and make significant dietary contributions to many cultures. These food types are particularly popular in developing regions of the world where more sophisticated equipment and technologies are not available.

Most fermentation is carried out via lactic acid bacteria (LAB) also known as lactobacilli. Fermentation acts as preservation for foods, enables foods to be more readily digested, as well as increases the production of vitamins, minerals, and various other phyto-chemicals, depending upon the plant being fermented. Often the fermentation process increases the bioavailability of many chemical compounds by freeing them from the food matrix to which they are typically bound.

The most well known fermented foods are cheeses and yogurts, both of which are derived from milk. Amazingly, milk can be fermented into over a thousand different products each with its own distinctive quality, flavor, and texture. There is an abundance of other fermented food types in existence as well.

Natto is a staple in Japan and is rich in the anti-cancer isoflavone genistein. Natto is said to contain up to five times more genistein than that of tofu or soy milk. Cereal-based fermented foods are a major constituent to the diets of many African countries. Africa is one of the lowest producers of cereal grains, however; approximately 77% of their diet are composed of cereals that are processed by natural fermentation techniques. Ogi is a fermented cereal prepared from maize and typically consumed in West Africa. Banku is a staple of Ghana and is derived from maize, or a mixture of maize and cassava. Kishk is yet another fermented grain, which is prepared from the fermentation of wheat and milk. It is highly nutritious and typically consumed in Egypt. Fermented cabbage, typically known to the Western World as "sauerkraut" was originally developed in China several thousand years ago and is still a popular dish in Germany and North America.

Utilizing these fermentation techniques, we have developed a line of Bioferment products for the cosmetic industry based on the principle that fermentation allows for the isolation and concentration of various phytochemicals. We have carefully reviewed specific properties of each plant material and have focused on developing Bioferments based upon the native constituents or pre-cursor chemicals found within each particular plant. Each product developed has its own unique characteristics and activities.

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