

Are Fermentation and Cryoextraction Processes Old, Innovative or Both?





A deep history exists

Between humans and fermented foods – in fact fermentation may be the earliest form of food processing our ancestors engaged in.

The simple interaction between people, food and the environment during prehistoric fermentation represents a human/environment interaction that is characterised by a simple, subtle and sustainable manipulation of ecological processes for human benefit.

Once upon a time... a prehistoric human picked up some dropped fruit from the ground and popped it unsuspectingly into his or her mouth. Humankind's first encounters with alcohol arrived in the form of fermented fruit.



History of Fermented Foods: As early 9,000 BC in the Neolithic village Jiahu were brewing a type of mead (10% alcohol)



7000 BC

Cheese production in Iraq following the domestication of animals.



6000-5000 BC

Wine making in the Near East, fermented milk and beverages.



4000 BC

Egyptians discovery of yeasts to make bread.



3000 BC

Sumerian poem honoring Ninkasi, contains the oldest surviving beer recipe.



2000 BC

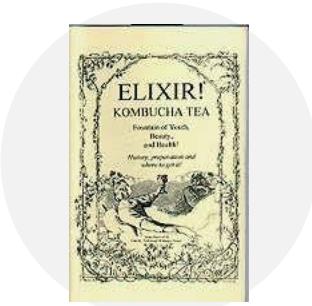
Cucumbers from their native India helped begin a tradition of pickling in the Tigris Valley.

History of Fermented Foods



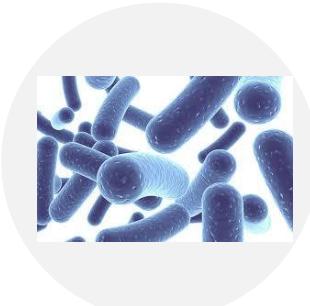
1500 BC

Preparation of meat sausages by ancient Babylonians.



221 BC

Kombucha was first recorded during the Tsin Dynasty. It was known as "The Tea of Immortality".



1890s-1900s

Lactobacillus acidophilus & Ernst Moro, Bifidobacteria & Henry Tissier, Lactobacillus bulgaricus & Elie Metchnikoff

The Evolution of Food

THEN:



NOW:





History of Freeze drying



The method can be traced back to prehistoric times and was used by the Aztecs and Eskimos for preserving foodstuffs.



The Peruvian Incas who lived in the high altitudes of the Andes also used a basic freeze drying method. They stored some of their food crops on the mountain heights.



In 1890, Altmann devised a method to freeze dry tissues. In 1932, Gersh designed an effective vacuum plant for freeze drying of histological preparations.



History of Freeze drying



During World War II, freeze drying was for the preservation of biological samples such as plasma & penicillin.



Freeze-drying products became a major commodity for astronauts and military food rations.



Soon afterwards freeze drying was applied to foods. In 1964, Nestle developed an improved method of producing instant coffee by freeze drying.



Fermentation Process

At the crossroad of the worlds



Fermentation of raw materials enables:

Increase the solubilization
of compounds

Higher concentration in
active compounds

Obtain new biological
properties



Tailored Process

Selected Vegetal Raw Material



Specific Microorganism

With Greentech's knowledge, richness in plant materials, our collection of microorganisms and handling of fermentation.



Unique, Original & Specific Active issued
from **FERMENTATION**



100% Green Biotechnology 3 Step Process

Step 1

- Greentech selects the best ferments, which extract or develops the best activity from a specific plant.
- Once ferment selection is complete, Greentech optimizes the fermentation process (modifies temp, pH, time).

Step 2

- When fermentation parameters are defined, fixed and controlled, Greentech assures the quality of the active, thanks to various checkpoints and analysis.

Step 3

- Greentech guarantees activity of the novel ingredient, by assays and titrations in active molecules. If necessary Greentech is able to purify active compound.
- Greentech certifies efficacy of the active by in vitro or in vivo tests.

Fermentation increases:

Potent activity
x36 Lactic acid (AHA)
Fermented raspberry extract



Availability of active compounds
x3.3 Polyphenols
Fermented Goji extract



Final Activity
x1.5 antioxidant power
Fermented Pomegranate extract





Cryoextraction Process

At the crossroad of the worlds



The Cryoextraction: A patented process

Definition:

Made from live plant, retain the organoleptic features of live plant and offers the best of the plant by bringing back its natural active ingredients.

Specialty:

Succession of stages made at low or very low temperatures, from harvesting of the plant to the ultimate stage of freeze drying.

Guarantee:

True and fair presentation of live plant, natural aspect.

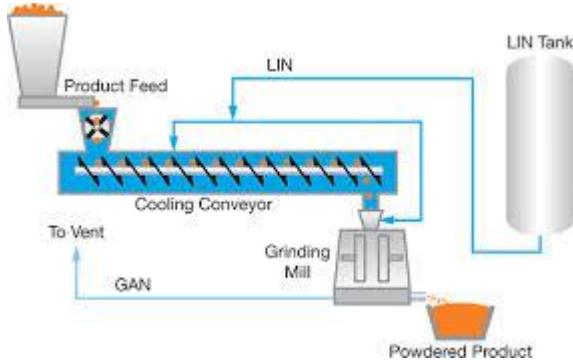


The Process of Cryoextraction

Fresh plant or Bud



Cryogrinding



PVS (Stabilized live plants)
Microsized freeze-dried powder

The Cryoextraction: A patented process

Market:

Nutraceutical industry. The PVS is actually an ingredient in its own right.

Development:

After cryogrinding, the PVS is freeze dried in its totality which leads to conceptualize this product as an “totem” of freeze dried live plant.

Presentation:

Microsized freeze-dried powder, contains the interesting characteristics of the original live plant.



Thank You

Innovation is where
Worlds meet



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