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and moving towards OU Kosher certification ;

Acquisition of Algatech

Animal vs. plant protein :

A new Yeast Extract

♦ A new allergen for US

reference completes line.

COVID 19 pandemic.

(Israel)

amino acids

(FALCPA)



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INFORMATION FROM THE SOURCE ON PEPTONES & HYDROLYSATES

Covid's lingering effects

The Covid 19 pandemic led to challenges in production and raw material supply, and lingering effects may last several months.

Solabia has been able to leverage both production facilities in order to avoid production delays, however the lingering effects of the pandemic appear to be

with the availability (and increased cost) of some raw materials and the delays in maritime transport, that have been significantly impacted by Covid. Real tension exists for space in container ships and demand for confirmed departures is high. Solabia is taking proactive **steps** to insure the continued supply of strategic components at both peptone production sites.



Solabia News : acquisition of Algatech

In May 2019 the Solabia Group acquired the Israeli (Kibbutz Ketura) biotech company Algatech, a specialist in the production of microalgae for nutritional applications.



The company is a world leader in the production of the carotenoid astaxanthin, a powerful antioxidant that has numerous applications in treating oxidative stress.

o Algatech cultivates the microalgae Haematococcus pluvialis in one of the world's largest photobioreactors, 600km+ of glass tubing in the middle of the sun-drenched Arava desert,

with a variety of cutting-edge cultivation and process technologies. Natural astaxanthin derived from microalgae have been shown to be over 500 times stronger than vitamin E and more potent than other carotenoids. Solabia will promote its nutrition offer under the name of Solabia-Algatech Nutrition.

Solabia News : Brazil production facility & SAP

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Solabia Biotecnologica integrate will SAP. which will facilitate the harmonization of the quality systems, CoAs, and change the format of batch numbers.

Solabia Biotecnologica will transition to the same SAP system as in France, thereby further harmonizing the system quality & documentation between the two production facilities.

One of the most tangible effects will be the change in the **batch number** format, which will be assigned by SAP as a 7 digit number, as in France.



Brazil to pursue Kosher certification

Brazil successfully completed its first Kosher audit and will be implementing Kosher certification under the auspices of the Orthodox Union for the production of Acid Hydrolysate of Casein A143400 towards the end of 2021.

In addition, the Kosher certification will be extended to the production of a nutraceutical prebiotic, BioEcolians, a non-animal fructooligosaccharide.

Solabia US :

28 West 44th Street Suite 1021 New York, NY 10036

T:+1-212-847-2397 F:+1-646-786-4955

 $\boxtimes: i\underline{nfo.peptones@solabia.com}$

Solabia France :

41, rue Delizy 93692 PANTIN, France

T:+33 1.48.10.19.40 F:+33 1.48.91.18.77

 \boxtimes : <u>informations@solabia.fr</u>





"... fundamental

Plant vs. animal : protein and amino acid content

differences exist between plants and animal tissue that may dictate how well peptones made from each source function

with different microbial strains...."

ANIMAL PROTEIN MAY OFFER A MORE COMPLETE STARTING MATERIAL, BUT SOME PLANT PROTEINS ARE WELL-ADAPTED TO PEPTONE APPLICATIONS.



FRANCE COORDINATES :

SOLABIA HEADQUARTERS IN PANTIN, FRANCE HAS MOVED DOWN THE STREET INTO LARGER OFFICES ; THE CORPORATE LEADERSHIP, MARKETING AND COMMERCIAL TEAMS ARE LOCATED AT :

41. RUE DELIZY

93692 PANTIN CEDEX

FRANCE

TELEPHONE, FAX AND EMAIL COORDINATES REMAIN UNCHANGED.

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The debate on the use of animal or plant-based peptones is often reduced to the regulatory questions associated with **Bovine Spongiform Encephalothopy (BSE)** and / or other viral contaminants like Foot & Mouth disease (FMD). However fundamental differences exist between plants and animal tissue that may dictate how well peptones made from each source function with different microbial strains.



One of the main differences between plant and animal proteins resides in their amino acid content.

Animal proteins contain all 22 amino acids and in particular the 9 essential amino acids needed in human nutrition. Plant peptones may not contain all these essential amino acids and the ratio of amino acids is different.

Plant proteins are often lower in leucine and deficient in other essential amino acids, such as sulfur-based amino acids or lysine.

New Yeast Extract reference



Solabia adding a new Yeast Extract reference to its portfolio in order t o reinforce availability of this useful complement to peptone use. Τhe new

is

reference, A120400, Bacteriological Yeast Extract, is produced using a different production protocol than the historical A120200 product and provides excellent performance and ingredient compatibility.

This reference is characterized by a somewhat higher amino Nitrogen content and a higher degree of digestion. Its streamlined specifications result in a specific peptide distribution, thereby offering an additional option for fermentation media requiring Yeast Extract. It is non-animal, non-GMO, non-allergen and Kosher certified. Contact Solabia for samples !

Amino acids fundamental in microbial physiology are **D-alanine** and **D-glutamic acid**, which are key constituents of the peptidoglycan layer, an essential part of the bacterial cell wall.

With bacteria of industrial importance, e.g. lactic acid bacteria, this group needs essential amino acids for growth, and the number and type of essential amino acids is strain dependent. Amino acid content also can determine the flavors (metabolites) produced by industrially important LAB like *Streptococcus thermophilus* or Lactococcus lactis. In particular, arginine metabolism plays an important role in many LAB, in terms of energy regeneration, pH regulation and protection against stress.

Amino acid differences are only one aspect of the animal vs. plant debate (other components such as carbohydrates, trace minerals and other growth factors play important roles), animal proteins do tend to offer a more complete starting material for peptones. However new, high protein plant sources such as pea, hemp, lentils or spelt may prove interesting new substrates in the future, provided they meet other criteria like solubility and yield.

Sesame added to US allergen list

On April 23, 2021 President Biden signed the Food Allergy Safety, Treatment, Education and Research Act of 2021 (FASTER Act), which adds sesame to the FALCPA list of major allergens.

Sesame has been part of the EU mandatory allergens for many years, so this does not change the situation in Europe. The application date is Jan 1, 2023 for updating all product labels.

FALCPA (US) MAJOR FOOD ALLERGENS	
- MILK	- TREE NUTS
- Eggs	- PEANUTS
- FISH	- WHEAT
- CRUSTACEANS	- SOYBEANS
- SESAME (NEW AS OF 23 APRIL 2021)	

Peptones that fall into US major food allergen categories are all casein peptones (a milk derivative), all soy peptones incl. blends containing soy, wheat peptone and any fish or seafood hydrolysates. Malt extract & lupin peptone are also concerned with EU allergen legislation. Non-allergen peptones include potato, broadbean, pea and usually yeast extract.

Contacts : info.peptones@solabia.com - In the US : 1-212-847-2397 - elsewhere : +33 1 48 10 19 40 - www.solabia.com