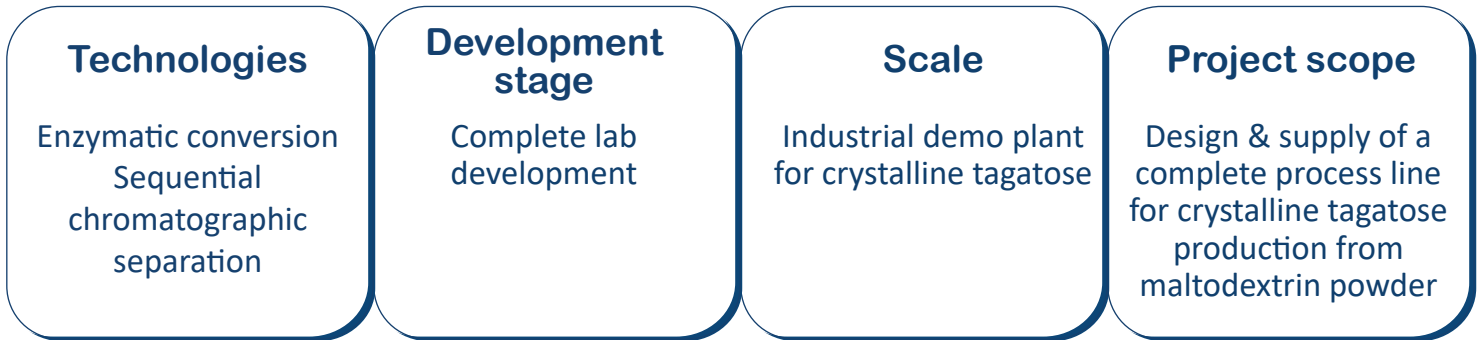







# CASE STUDY

## Rare sugar purification: tagatose Combining unique technologies & deep expertise



### Highlights

-  High yield enzymatic conversion from plant based source
-  > 99.5% DS crystalline tagatose purity
-  Complete process line development
-  First rare sugar continuous production in a single process line
-  Successful start-up exceeding target specs

### Background

Tagatose is a rare sugar that is naturally present in some fruits and grains. It offers many benefits as a white sugar substitute: no-aftertaste flavor profile, a negligible glycemic index, 60% fewer calories than sucrose while keeping many of the essential functionalities of sugar.






It is a unique sucrose alternative, contributing to a healthier lifestyle. Bonumose succeeded in producing tagatose using a plant based-starch and applying brand new enzymatic process. Achieved major key proof points for low cost, efficient production levels.

**Partnering together with Bonumose, Applexion teams** have worked to establish a suitable and sustainable rare sugar purification process.



### The challenges



-  Enhance the purity of tagatose after enzymatic conversion
-  Feed: 92% DS, maltodextrin powder
-  Raw material enzymatically converted into tagatose from starch by Bonumose exclusive process
-  Tagatose enzymatic broth at highest concentration possible
-  Final Product: >99.5% DS , crystalline tagatose

# THE SOLUTIONS



Patented enzymatic conversion by Bonumose



the sequential chromatographic system optimized by Applexion to achieve final sugar purity.



has become the preferred tool in sugar purification as it bringing advantages:

- ⦿ Efficiency - high purity fractions,
- ⦿ Cost effectiveness - low operating costs,
- ⦿ Productivity - fully continuous operations,
- ⦿ Low carbon impact - chemical free, energy savings and recycled fractions,

Key advantages of this process line are minimized production costs and fully continuous operating conditions. Treatments have been developed to boost further the efficiency of Applexion™ chromatographic tool.

An efficient combination of filtration and Ion exchange (upstream) and concentration (downstream) have been selected and designed.

Concentration & crystallization steps produce the final tagatose in the desired crystalline form.

# THE OUTCOME



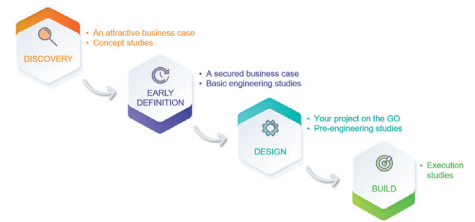
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