

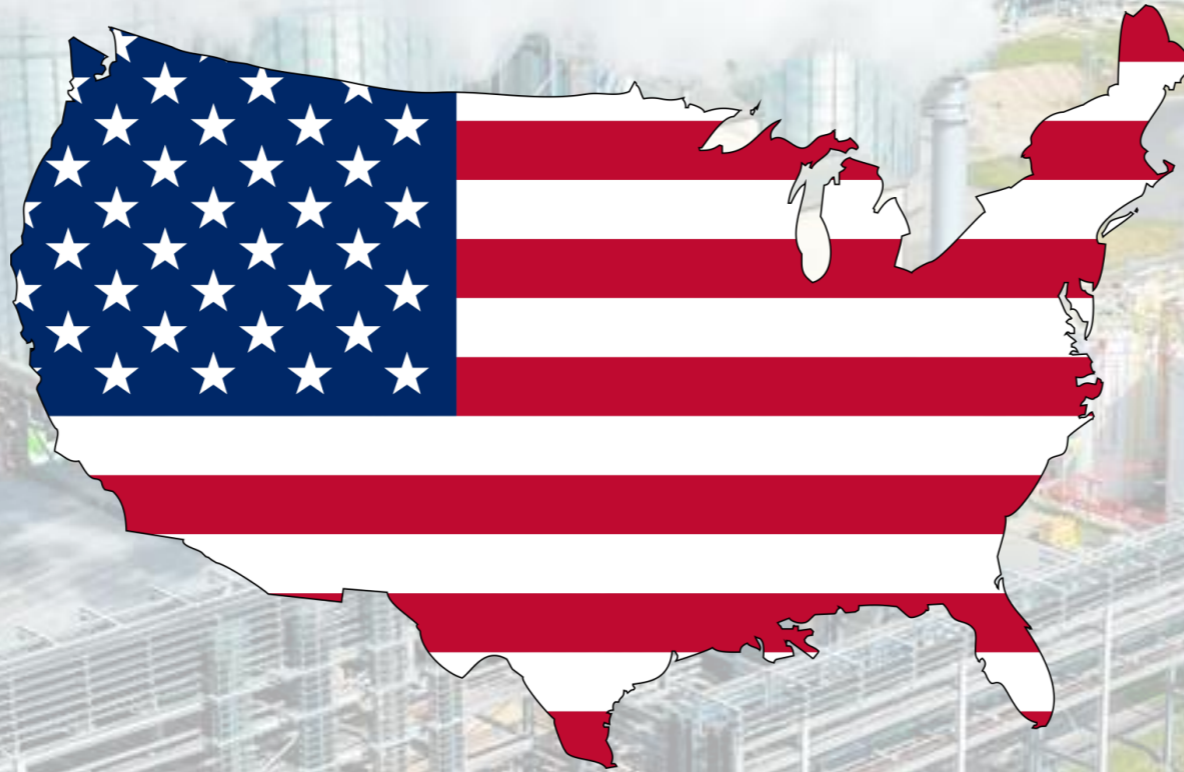
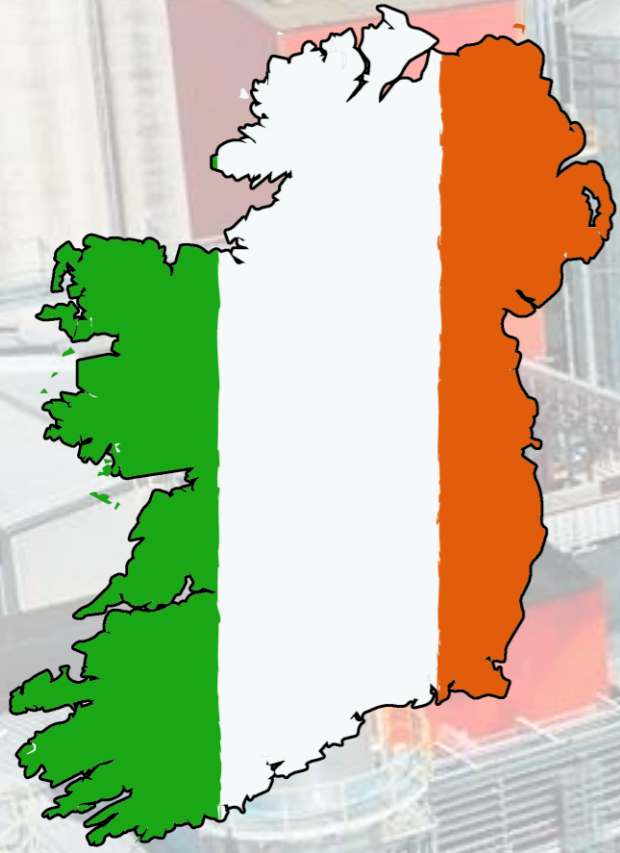
Celignis Analytical



With Accurate Data the
Opportunities are Limitless

www.celignis.com

American Grit Fueled by Irish Spirit



Celignis
Analytical

ibiocat

A Breakthrough for Next-Gen Biorefining

Caught in the web of uncertainty?

Market fluctuations?

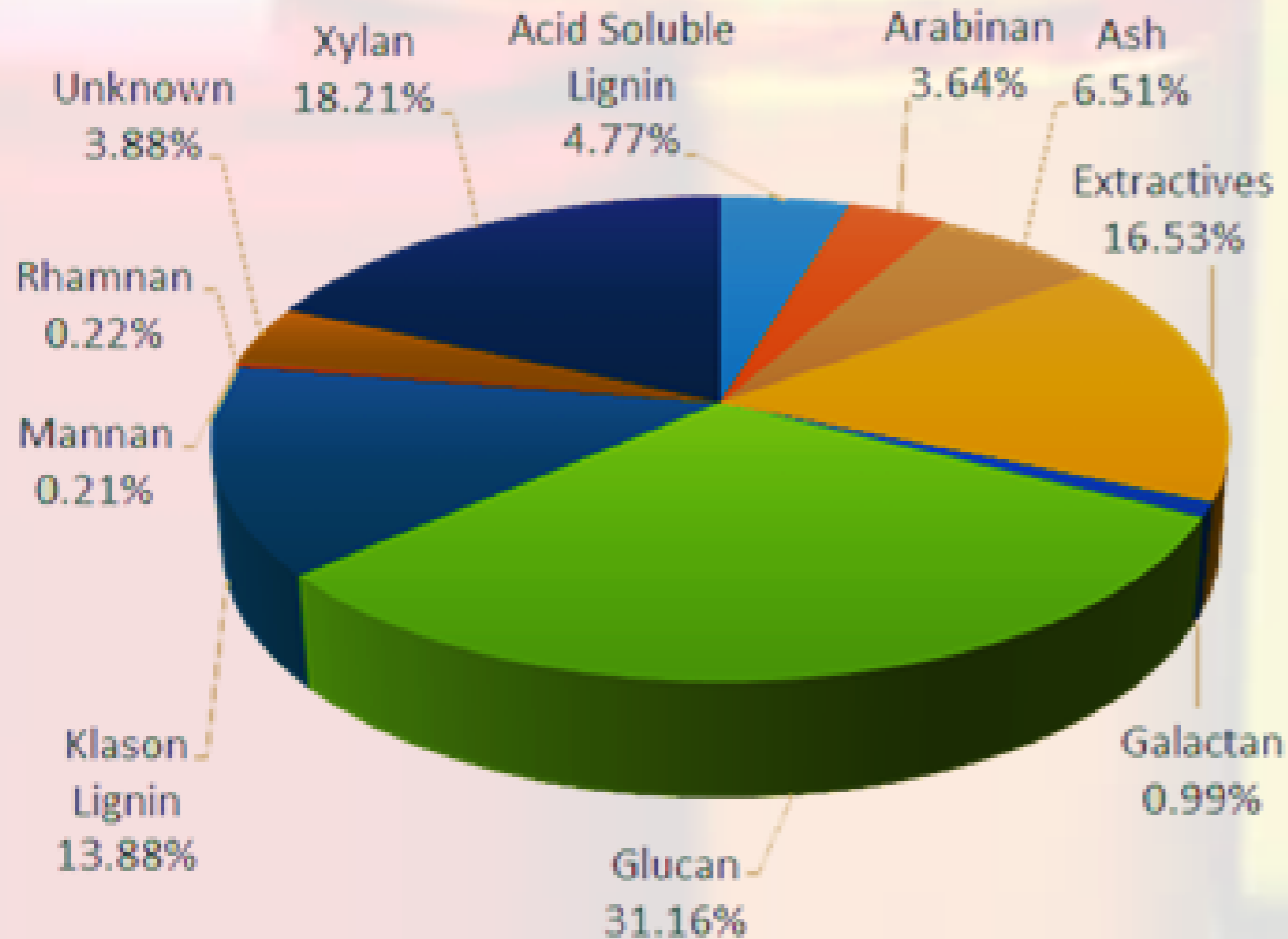
Want to diversify your products and markets?

From analysis through to product development, we will help you to realise your next-gen biorefinery vision.

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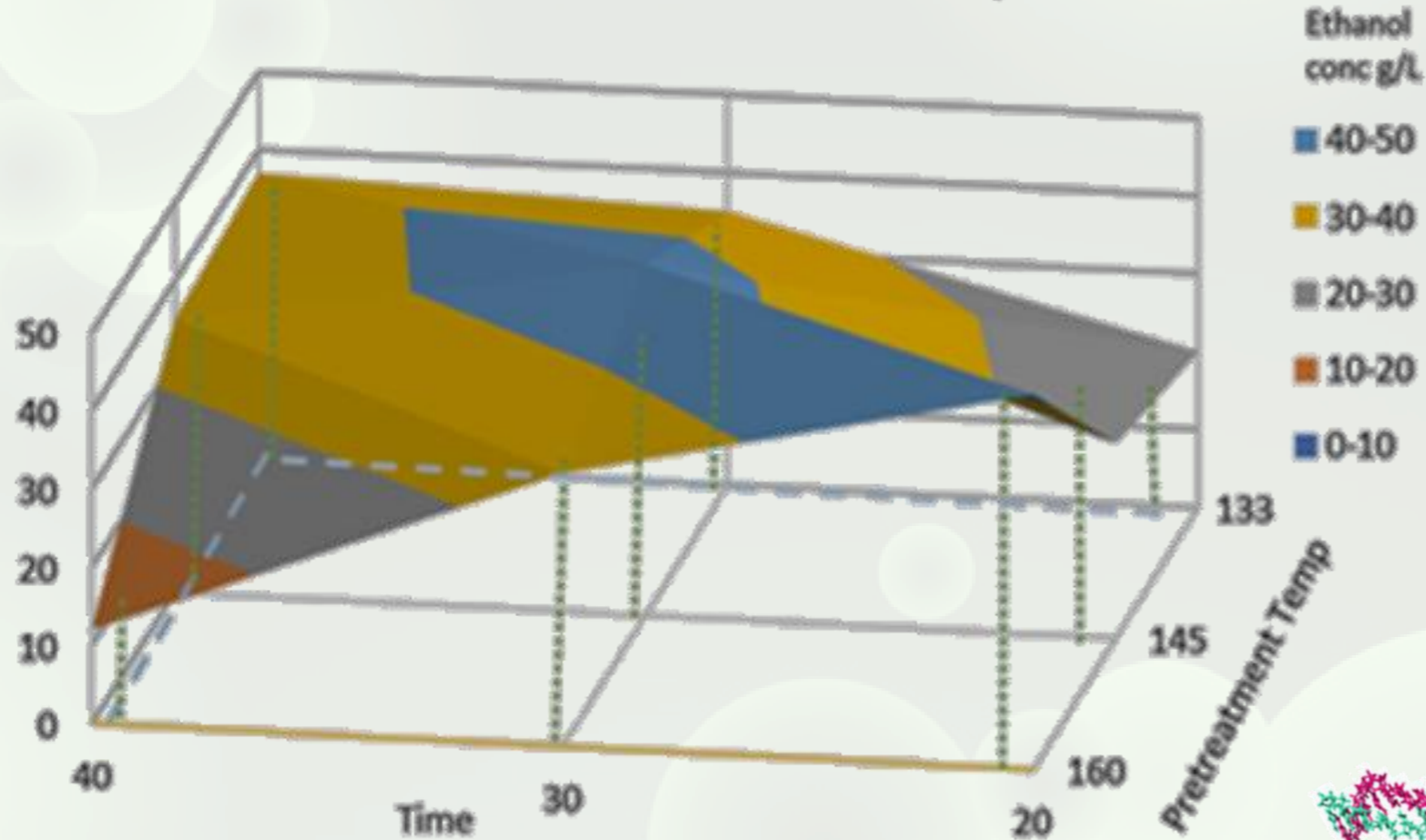
In-depth analysis of samples at Celignis



- Complete characterisation of the sample.
- Celignis online database allows data monitoring from anywhere in the world.
- Bespoke analysis based on the process and the product.

Process development and optimisation at Ibiocat

Interaction between time and temperature

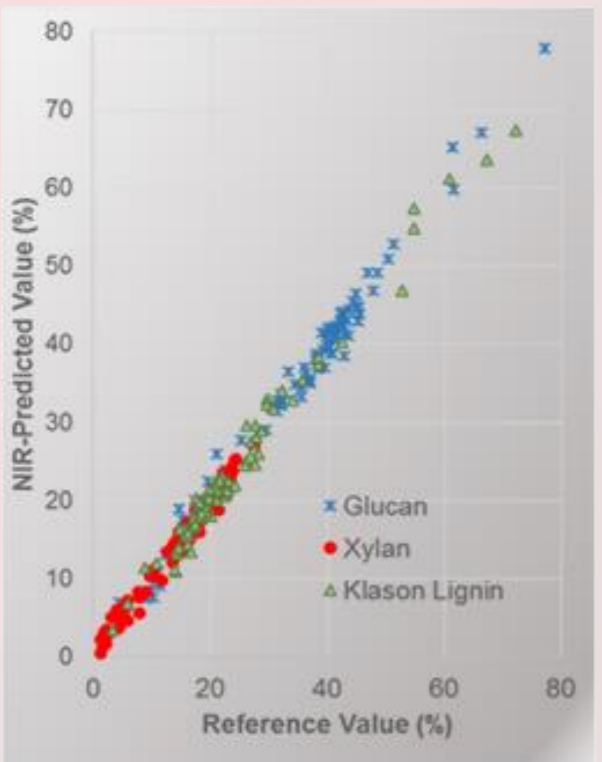


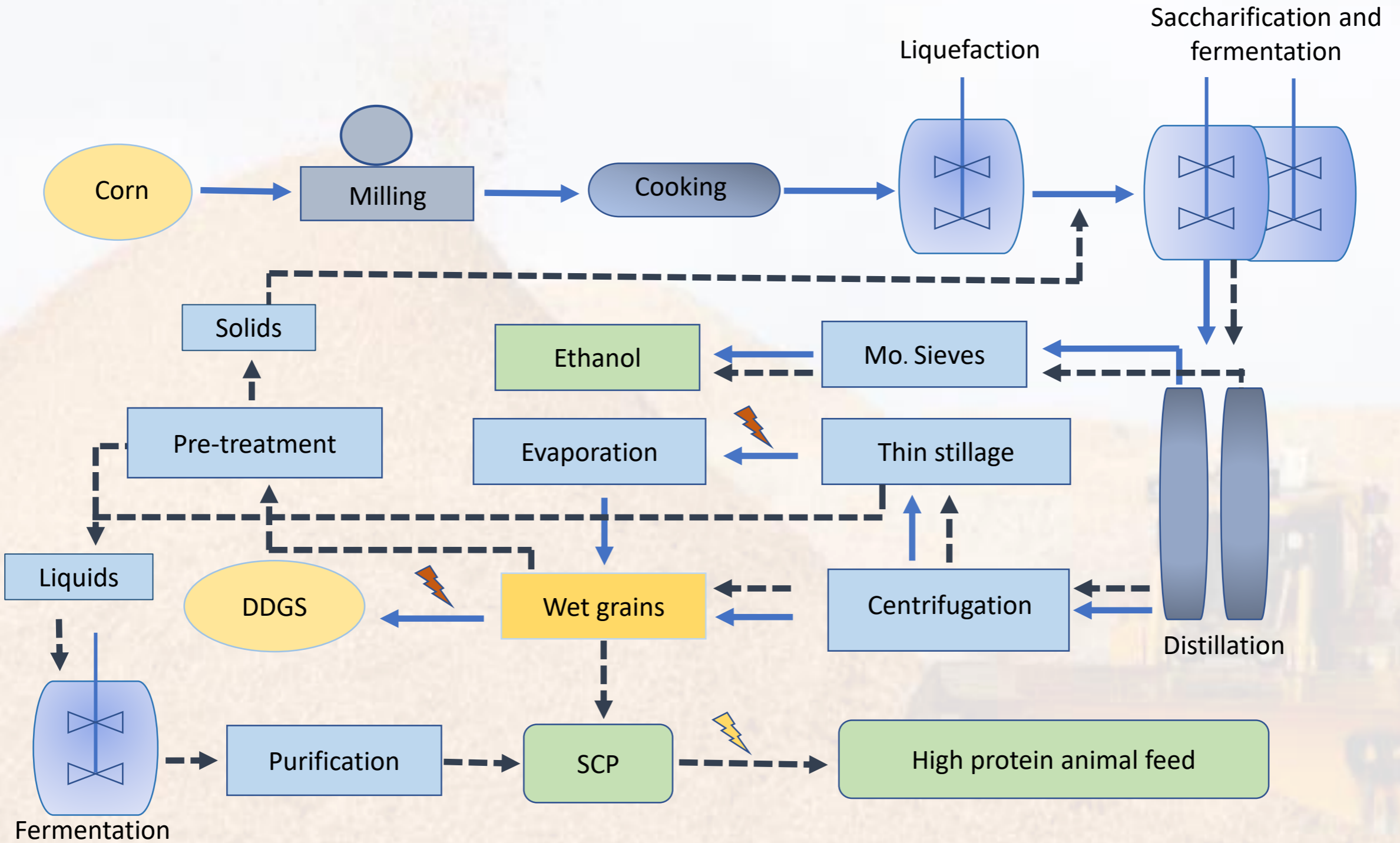
- Pre-treatment
- Enzymatic hydrolysis
- Fermentation



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Analysis of process liquids and residues at Celignis





Celignis Analytical



Celignis was born from research that targeted replacing fossil-fuels with sustainable biofuels. We found that feedstock composition was crucial, but that literature data could be highly misleading. There was a critical need for accurate analysis. We are driven to provide the best possible data and want to play our part in the development of the bioeconomy.

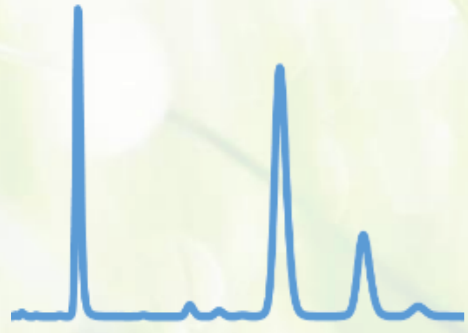
Dr. Dan Hayes, CEO of Celignis Analytical

“We believe that when people have accurate and comprehensive data the opportunities are limitless”



Celignis
Analytical

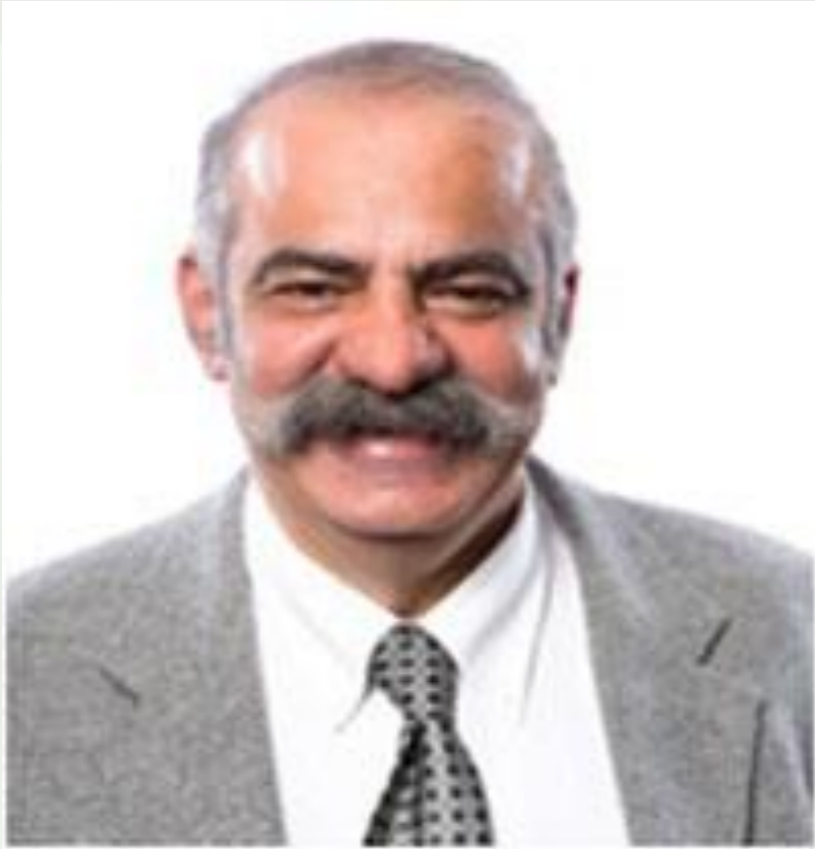
Celignis – The Global Leader in Biomass Analysis



- We have analysed over 10,000 biomass samples globally, working closely with industry partners.
- Celignis Database - Place your orders and view the progress of our analysis online as we collect the data.
- Experience - 15 years analysing biomass and bioprocesses.
- Team comprises: analytical chemists, chemical engineers, bioprocess specialists, biotechnologists, chemometricians.



Ibiocat



Charles A. Abbas, Founder of Ibiocat

**Charles is credited with coining the term
biorefinery in the early 1990's**

Ibiocat focuses on the development, validation, and licensing of advanced biorefinery solutions for the production of biofuels, feed, food, beverage alcohol, pre and pro-biotics, enzymes, and biobased chemicals from commodity crops.

Ibiocat is available to provide consultation services to industrial clients in these areas.

The Ibiocat logo features the word "ibiocat" in a bold, sans-serif font. The letter "i" is orange, while the remaining letters "biocat" are blue. The "o" is a solid circle, and the "t" has a unique crossbar design.

Ibiocat - One-stop shop for advanced biorefinery solutions



- Charles is the author of over 100 abstracts, scientific articles, book chapters, review articles, patents and patent applications.
- In April of 2016, Charles received the Charles D. Scott Award for his contributions to the use of biotechnology for the production of fuels and chemicals.
- In June 2016, he was also awarded the BBI FEW Award of Excellence for his contributions to fuel ethanol. Charles is considered a leading expert in yeast, large-scale industrial fermentations, and biorefining.

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