



PQI 5888

Fisiologia e Biotecnologia de Leveduras

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1 de abril de 2020

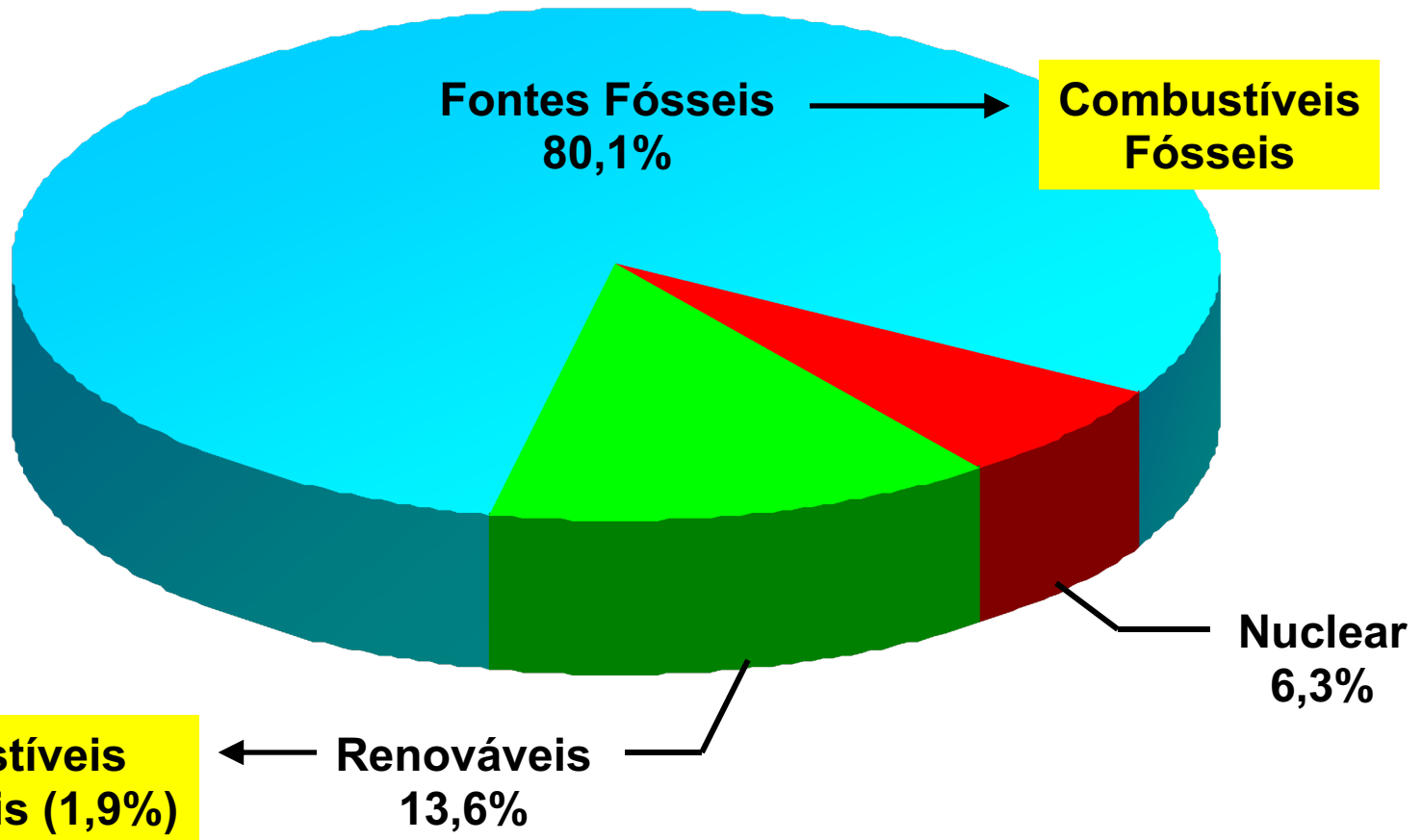
[Aula 1 EaD]

**Leveduras – Aplicações Industriais
(Fermentação Alcoólica)**



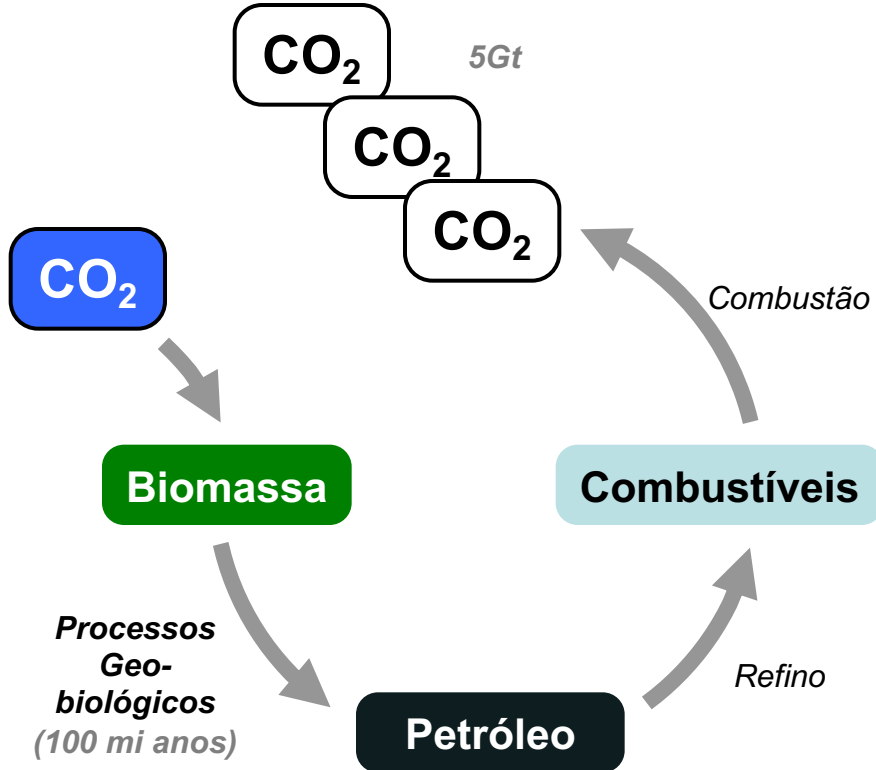
Consumo Mundial de Energia

80% da energia consumida é proveniente de fontes fósseis

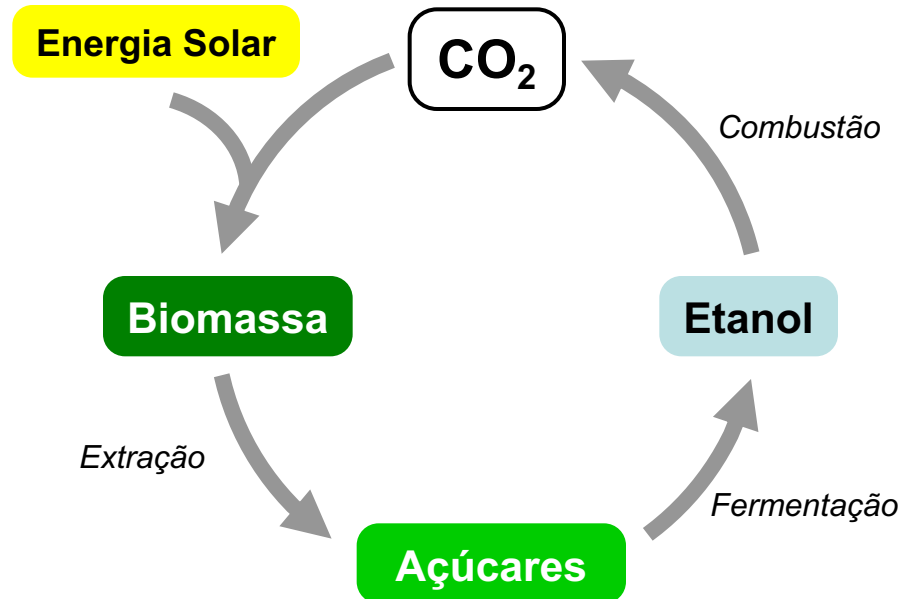


Fontes de energia

Combustíveis Fósseis

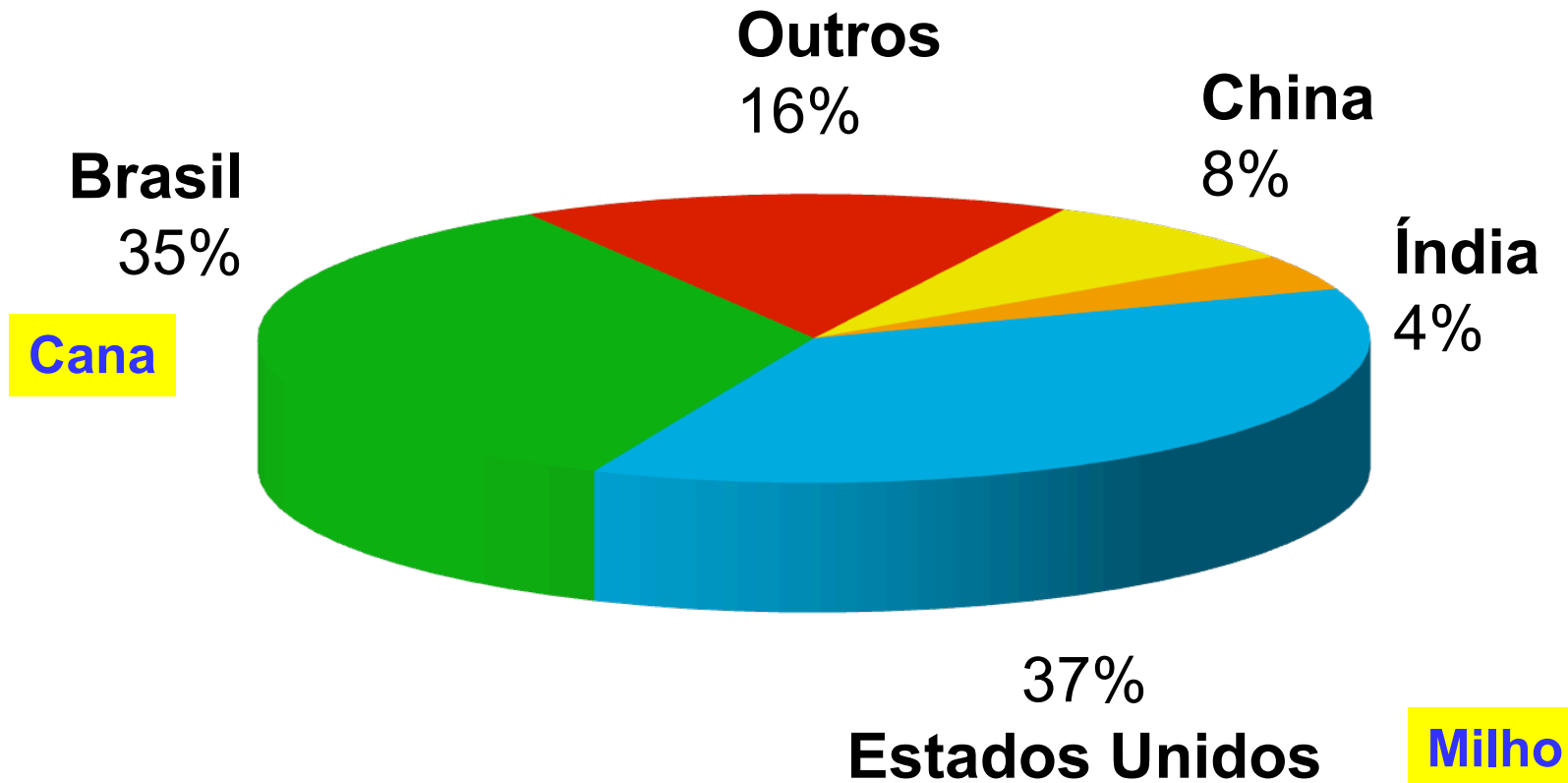


Combustíveis Renováveis

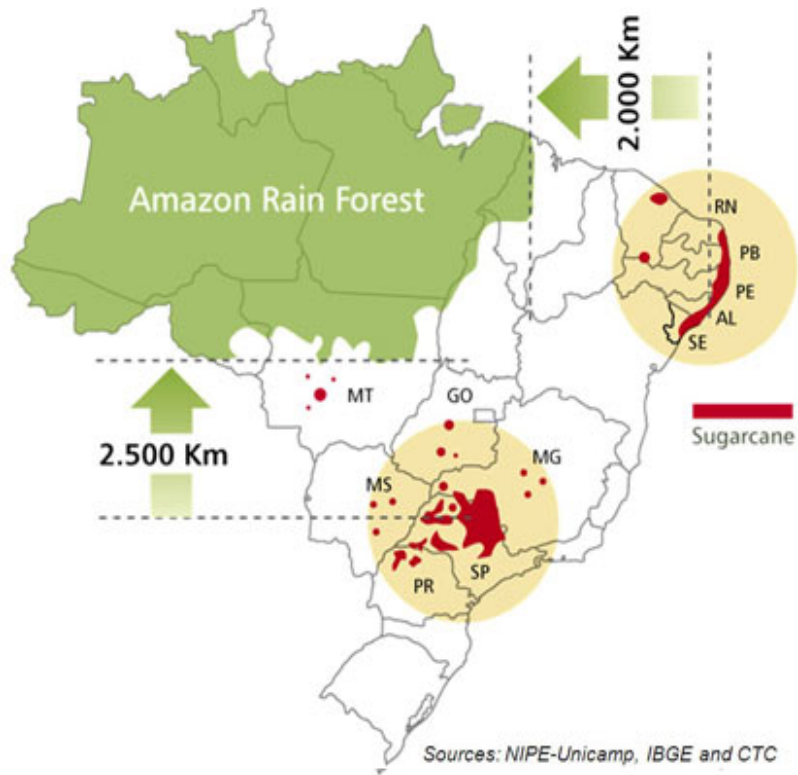


Produtores Mundiais de Etanol

54 Bilhões de Litros (2006)



SETOR SUCROALCOOLEIRO NO BRASIL

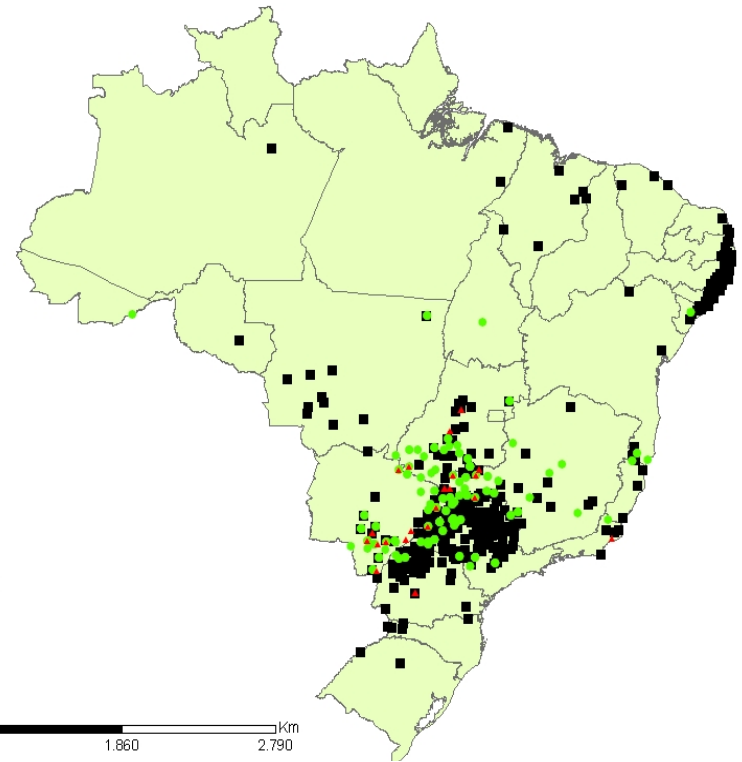


Legenda:

Usinas de Etanol

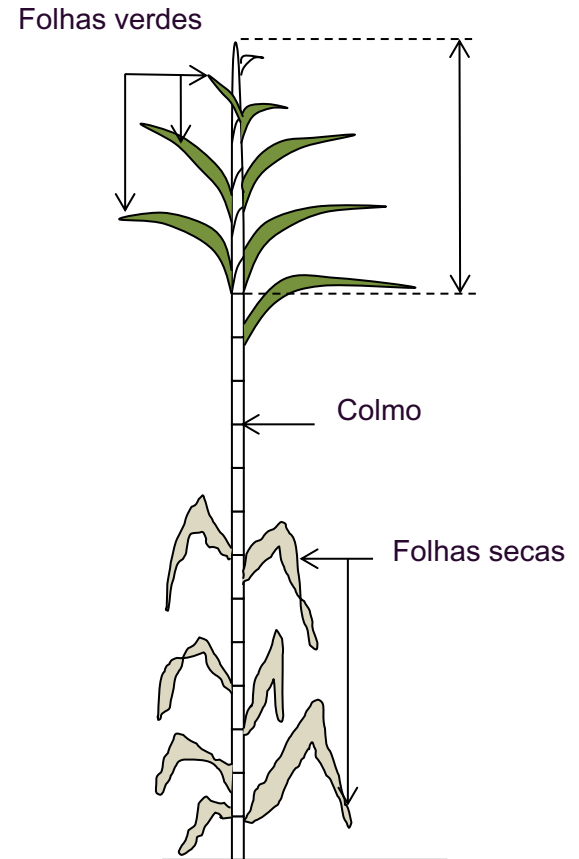
Situação

- ▲ Estudo
- Implantação
- operando



The sugar and ethanol industries in a nutshell

- **437 usinas**
 - 168 destilarias autônomas
 - 16 usinas de açúcar
 - 253 usinas de açúcar com destilarias anexas
 - * 129 usinas que vendem eletricidade a rede
- **Moagem total: 625 Mtons de cana-de-açúcar**
 - 46% em açúcar: 39 Mtons
 - 54% em etanol: 28 Bilhões de L
 - 20 Bilhões de L etanol hidratado (combustível)
 - 8 Bilhões de L de etanol anidro (misturado na gasolina)
- **1,002 MW vendido a rede elétrica**
- **8 Mha cultivados**
 - **4.4 Mha São Paulo**; 0.695 Minas Gerais; 0.599 Goiás; 0.582 Paraná; 0.439 Alagoas; 0.396 Mato Grosso do Sul; 0.349 Pernambuco



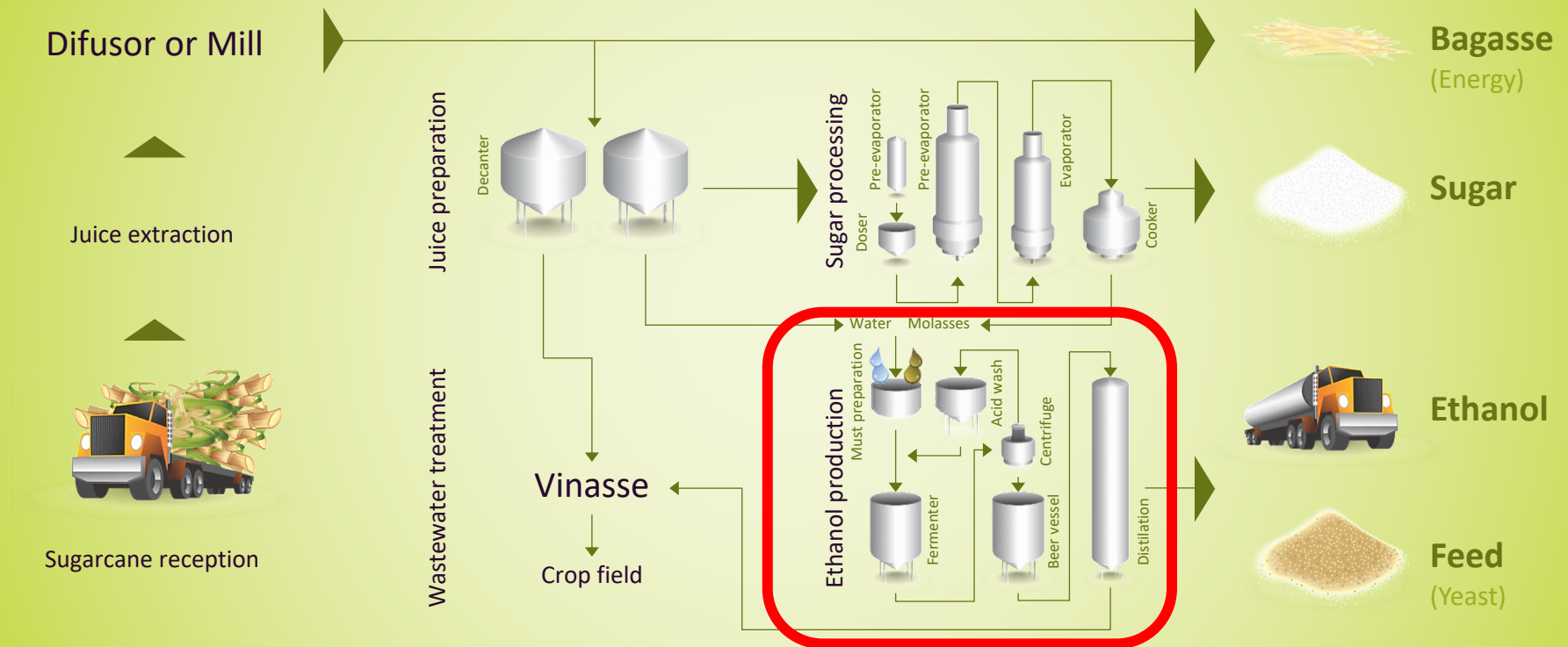
A INDÚSTRIA SUCROALCOOLEIRA NO BRASIL

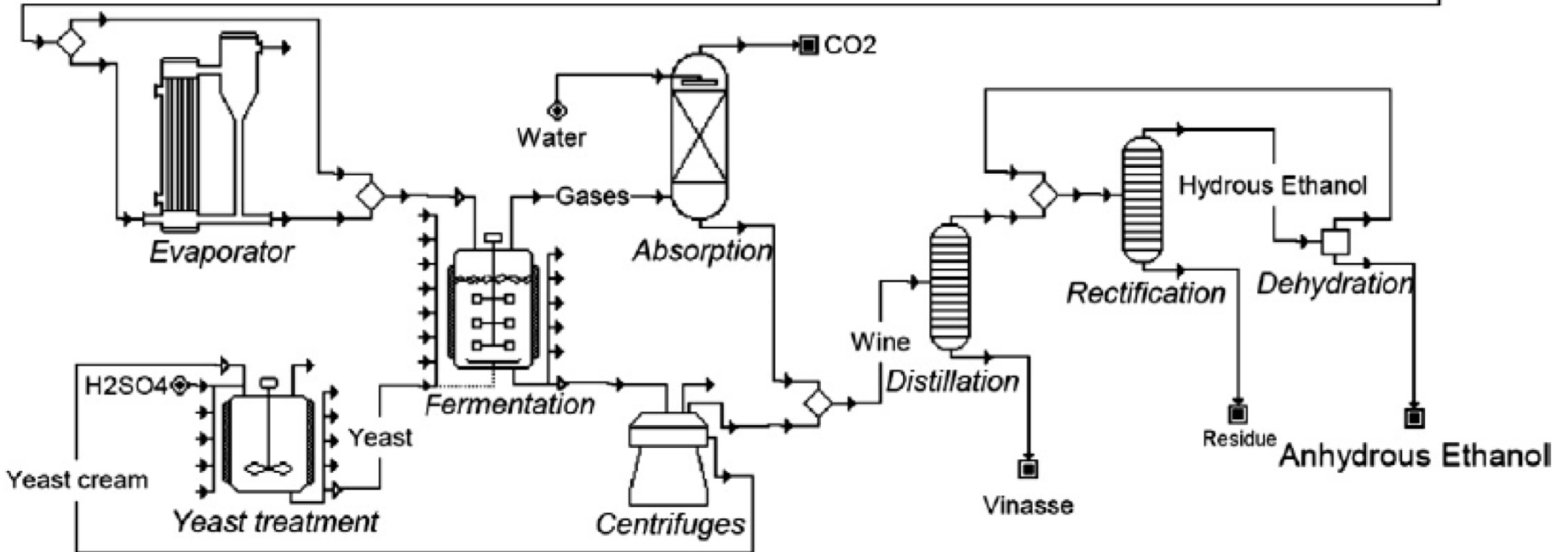
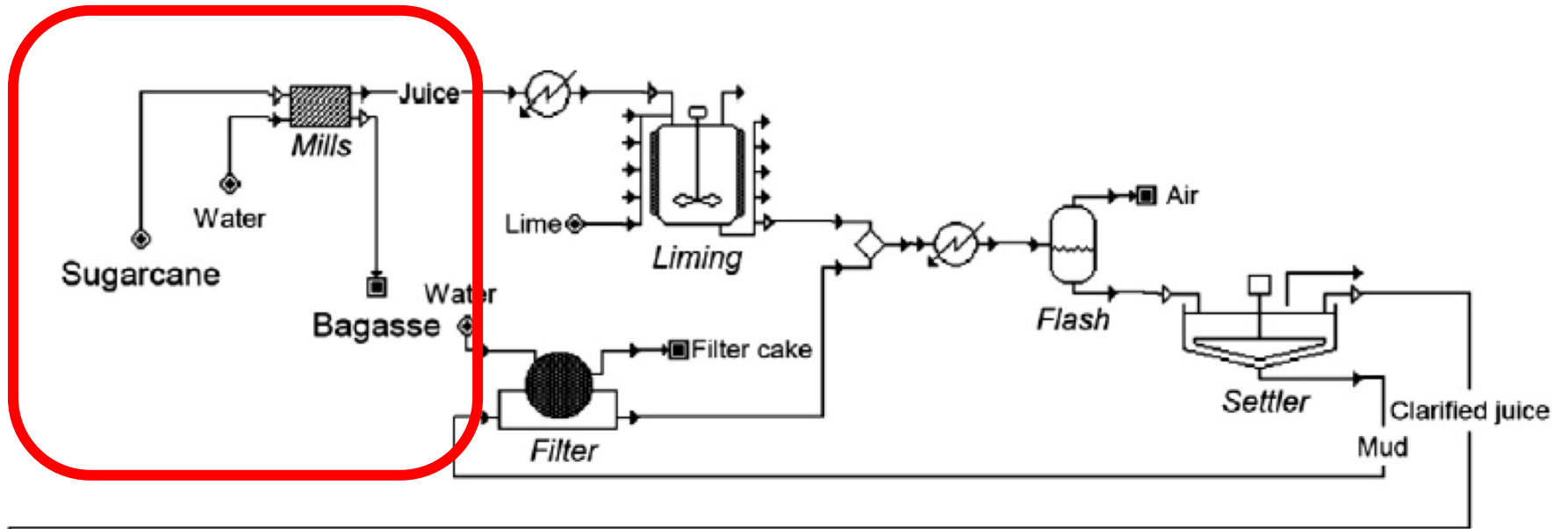
INPUT

- Cana-de-açúcar (matéria-prima)

OUTPUT

- Etanol
- Açúcar
- Energia





PROCESSO INDUSTRIAL

Recepção e Moagem da cana-de-açúcar

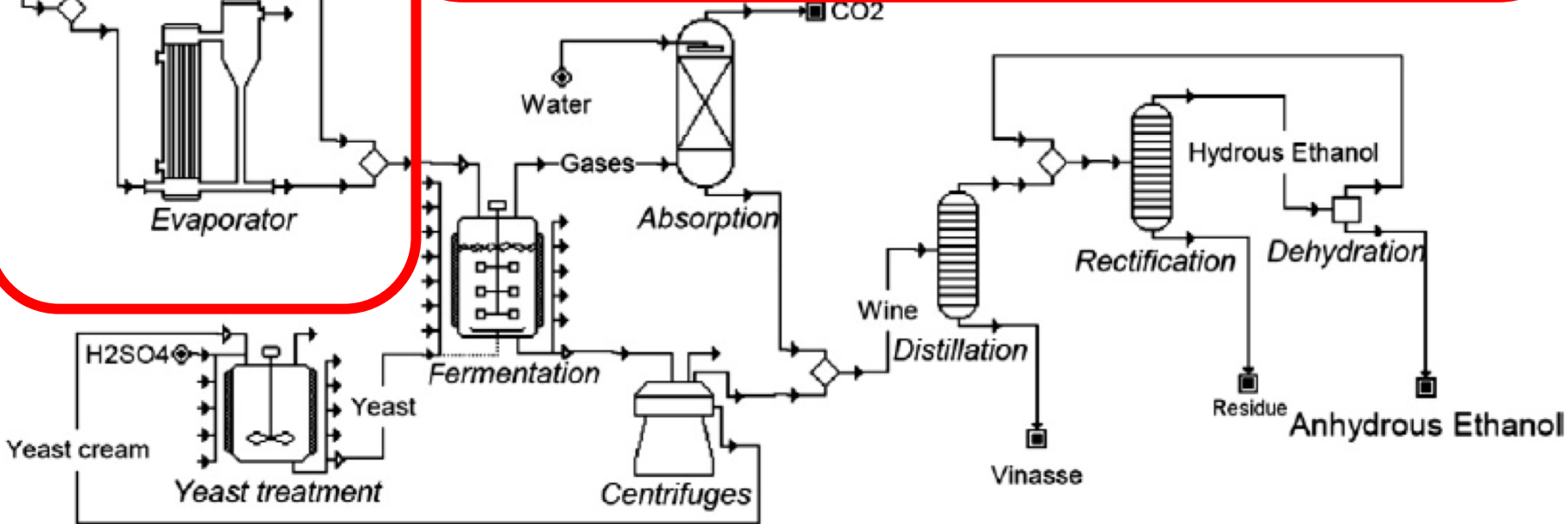
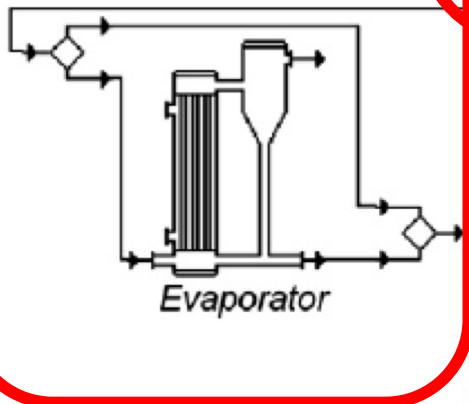
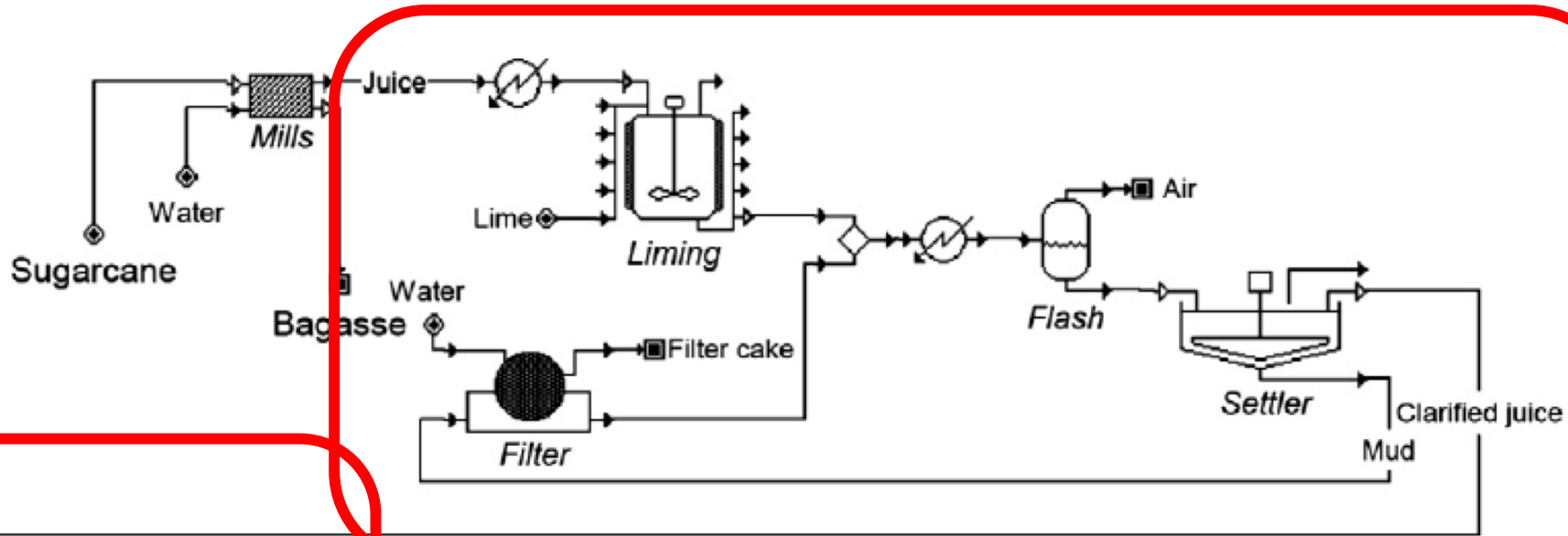




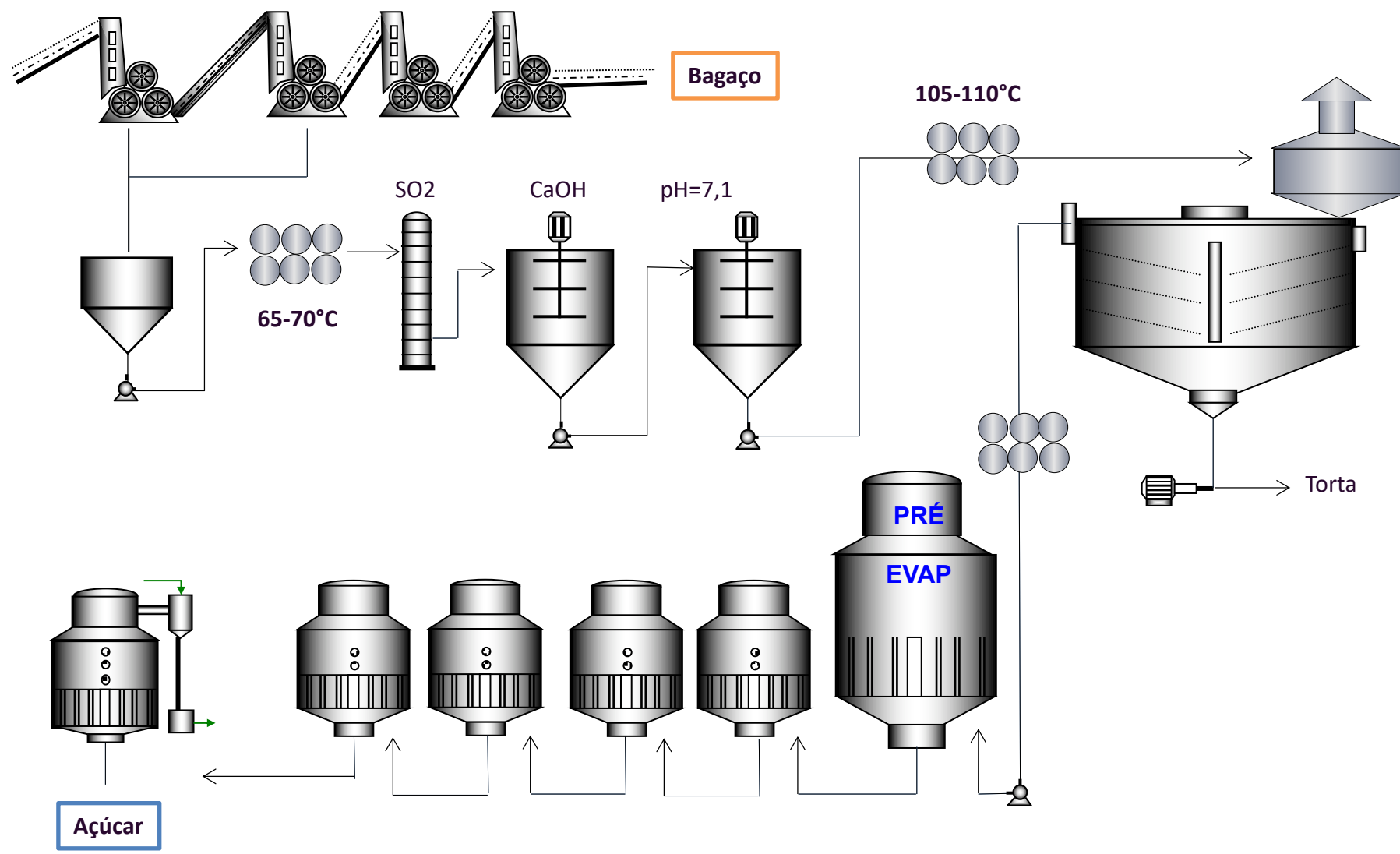
Bagaçó

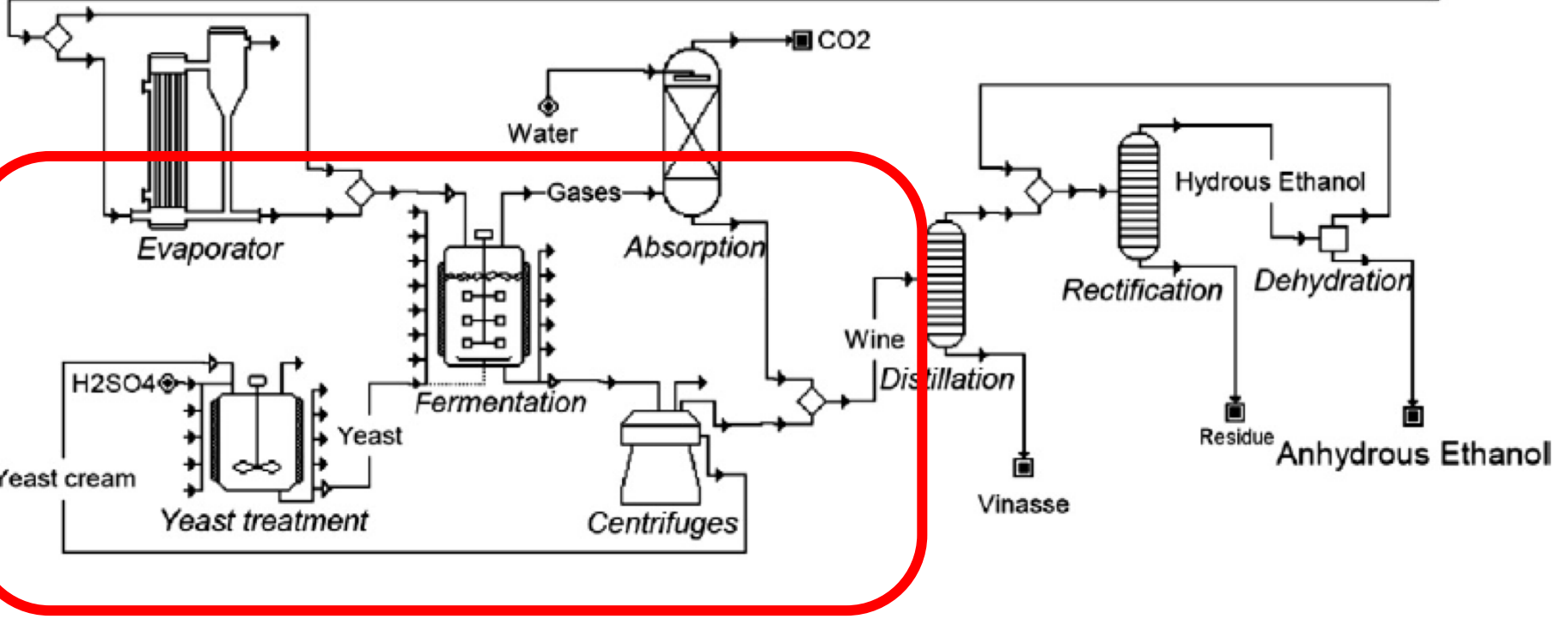
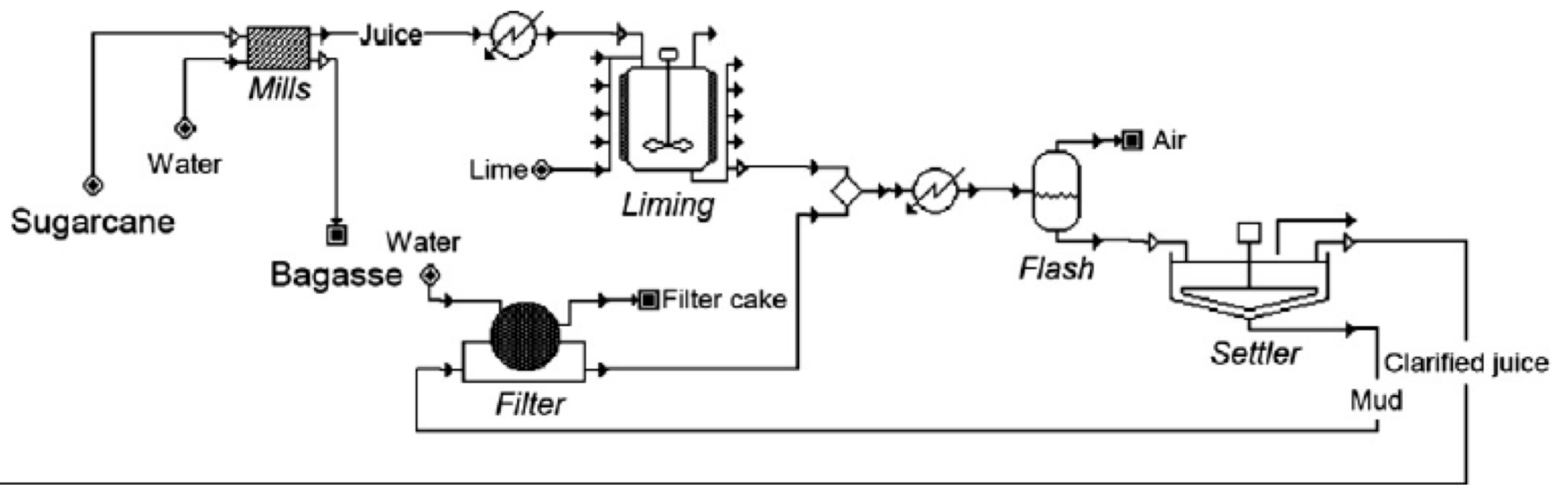
COGERAÇÃO (ELETRICIDADE)






Cana-de-açúcar





FERMENTAÇÃO E DESTILAÇÃO



A photograph of an industrial facility featuring several large, white, cylindrical storage tanks. The tanks are mounted on a dark green, octagonal base. In the foreground, there is a grassy slope. To the right, a tall, multi-story industrial structure is visible. A text box is overlaid on the image, containing the text '> 1.000.000 L'.

> 1.000.000 L

ETANOL DE CANA-DE-AÇÚCAR

Substratos a base de SACAROSE (Cana-de-açúcar)



Cana-de-açúcar - 20% açúcares solúveis (SACAROSE)

Substrato na fermentação industrial - Caldo / Melaço

Etapa fermentativa - Leveduras *Saccharomyces cerevisiae*

O SUBSTRATO: CALDO DE CANA E MELAÇO

