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**Hutatma Rajguru Mahavidyalaya**  
**Arts, Science and Commerce**  
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**T.Y.B.Sc. Sem-V**

**Industrial chemistry paper-505**

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**As per new revised choicebased credit  
system syllabus w.e.f. June2021**

**Topic - Sugar industry**

**Sub-topic -Sugar industry, By-Product  
of sugar industry**

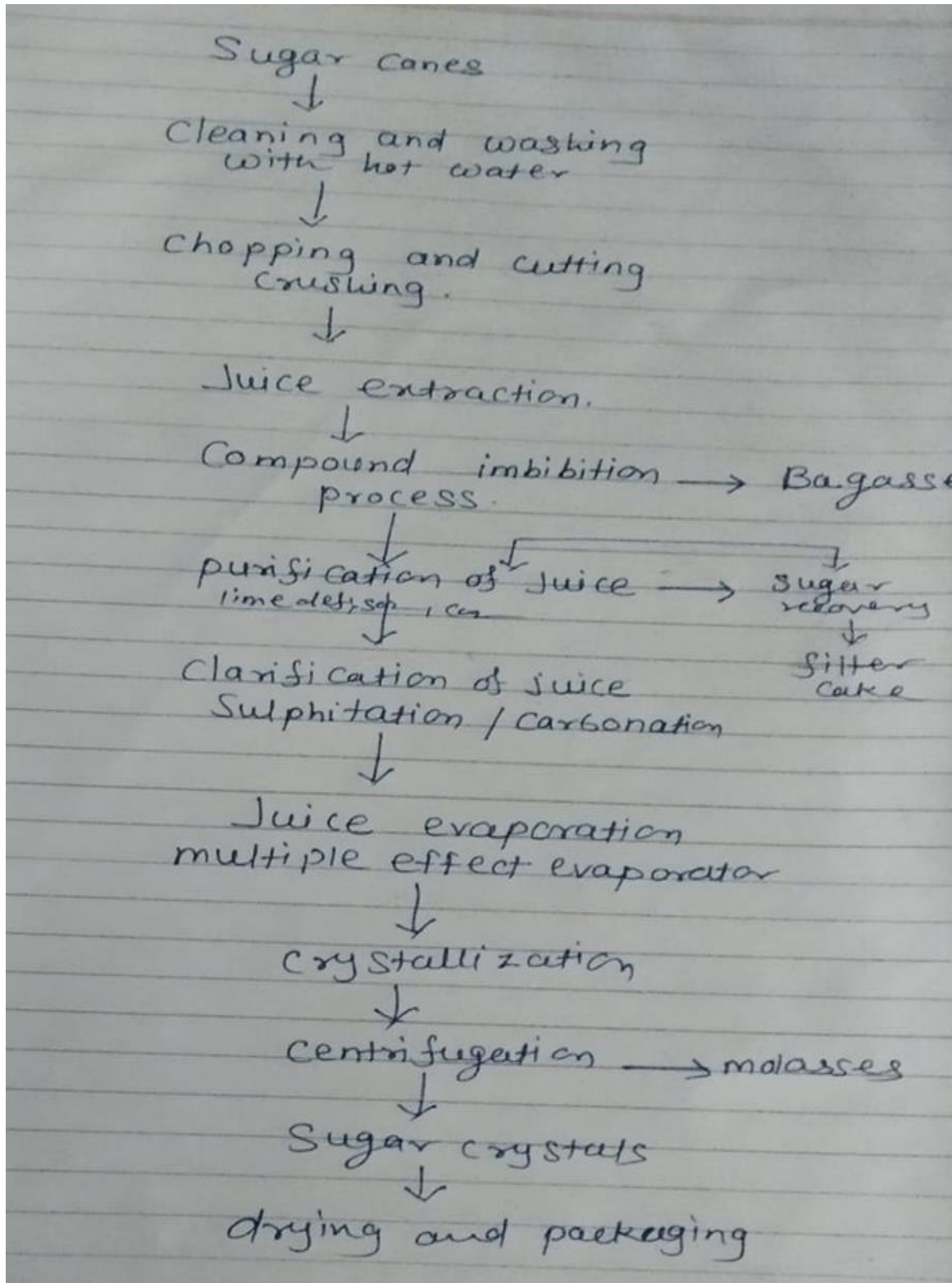
# Sugar industry

Sugar industry is the one of the biggest industry in India, The main source of cane sugar is sucrose is sugar cane. In India sucrose obtain from sugar cane and sugar gives 13% energy only. Sugar used as sweetening agent, source of energy, molasses and bagasse obtain is by product of sugar industry is used in alcoholic production and paper industry as a raw material.

## Step involved in manufacture of cane sugar

The cane sugar manufacture involved number of physical and chemical process steps involved in manufacture of cane sugar from sugar cane

- 1) Preliminary treatment to sugar cane
- 2) Extraction of juice
- 3) Purification of juice
- 4) Evaporation or concentration of cane juice
- 5) Crystallizations
- 6) Centrifugation
- 7) Drying
- 8) Screening and bagging



## **By-Product of sugar industry**

There are two by-product of sugar industry

- 1) Bagasse
- 2) Molasses
- 3) Furnace ash

### **Bagasse-**

The fibrous portion of cane from which extraction of juice is carried out, is known as bagasse it contains moisture, fibre, soluble solid the bagasse have its application

Use of bagasse- Direct utilization as fuel

In production of bagasse charcoal

In production of fibrous product like paper, board, box board

In production of methane and producer gas

It is used as animal feed

It is used as soil conditioner

## **Molasses-**

In crystallization process of sugar from which no additional sugar is recovered economically such the residual mother liquor left behind called as molasses, The molasses is the black syrup which contain significant quantity of both sucrose, reducing sugar

The molasses used as

As animal feed

Fermentation industry as raw material to prepare the alcoholic drink-ages

It used to produce Compressed yeast, Organic chemicals like acetone, citric acid, butanol

Edible syrup is manufacture from molasses

It is used as neutral fertilizer.

## **Furnace ash-**

The bagasse contains silica and oxides of metals like Ca, Mg, K, Na.

The furnace ash is used as natural fertilizer, and also in glass industry as it easy to grind, resist to water below 1000c

References: According to the new revised syllabus of Savitribai Phule Pune University from June 2021 Text book of Industrial chemistry for T.Y. B.Sc. course (CH- 505), Sem-v Manali Publication, Nirali Publication and google images

HRM, Chemistry