

K.T.S.P. Mandal's
Hutatma Rajguru Mahavidyalaya
Arts, Science and Commerce
Rajgurunagar, Tal-khed, Dist. Pune

T.Y.B.Sc. Sem-V

Industrial chemistry paper-505

Associate Prof. Kolekar S.S.

**As per new revised syllabus w.e.f. June
2021**

Topic - Fermentation industry

**Sub-topic – Introduction And the basic
requirement of the fermentation process.**

Introduction

fermentation may define as a process in which chemical change carried out about the organic substrate through the action of biochemical catalyst known enzyme, these enzymes are produced by specific type of micro-organisms

In all fermentation process, complex organic material is broken down into simple molecule and decomposition is brought about the action of living organism which secrete the enzyme catalyst suitable to the process.

The important product of fermentation industry are

The one of the most important product of fermentation industry is alcoholic drink -ages like- ethanol, wine, beer, spirit.

The antibiotics like- penicillin, tetracyclines are the product of fermentation

The Vitamins like- Vitamins A, Vitamins B12

And organic acids like- lactic acid, citric acid, vinegar are product of fermentation

Beaker yeast, fodder yeast, single cell proteins also the product of fermentation industry

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 conversion of molasses into alcohol is best e. g of fermentation.

In fermentation, the organic molecule is broken into simple molecule and undergoes the decomposition is brought about the action by action of living organisms which secrete the enzyme catalyst suitable for the process. Fermentation industry

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The basic requirement of the fermentation process.

The following are five basic requirements for good fermentation

Micro- organism

Raw material

Time

Recovery

Economy

Micro- organism- To get good yield of fermentation process, the selected microorganism must be readily propagated and must maintain uniform biological and biochemical characteristics.

Raw material – The raw material must be cheap and easily available in the uniform composition. The molasses is raw material obtain as from sugar industry

Time- The time require for fermentation should be reasonable means rate of fermentation should be high

Recovery – The recovery of the desired product in the pure form should be easy with good yield

Economy- The process should be more economically benefited than chemical synthetic process. The fermentation of the organic substance should give a unique product which is in demand

e.g. penicillin, tetracyclines lactic acid, citric acid, vinegar

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