

Yeast–Mold Plate Count(YMPC)

BY

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Yeasts and moulds are special class of microorganisms belonging to group fungi. ****Yeasts** are single cell organisms larger than bacteria. White and thread, little stickiness. They reproduce by budding and also by formation of spores. They are commonly found in soil, fruits, and dairy products e.g. butter & cheese. Yeasts are used as starter organisms in manufacture of fermented milk products.

****Moulds** occur in filamentous forms and are larger than bacteria. Powdered and dry appearance and can be an orange, green, black, brown, pink or purple in color. Moulds are often present in air and cause contaminations and subsequent spoilage of dairy products e.g. cream, butter, cultured milk products, indigenous milk products, and condensed milk. Their presence in dairy products indicates improper pasteurization and poor sanitary conditions. Moulds are also known to produce mycotoxins e.g. **aflatoxins**. Some of the moulds are used for ripening of certain varieties of cheese.





What is yeast and mold count?

Yeast and mold count is a microbiological test used to assess the contamination of milk and milk products by fungi.. By quantifying the number of yeast and mold colonies present in a sample, this test provides valuable insights into the level of fungal contamination., some molds produce mycotoxins, which are toxic compounds that can pose serious health risks to consumers. Therefore, regular monitoring through yeast and mold counts is essential for:-

Total Yeast & Mold Count Total Fungal Count (TFC)

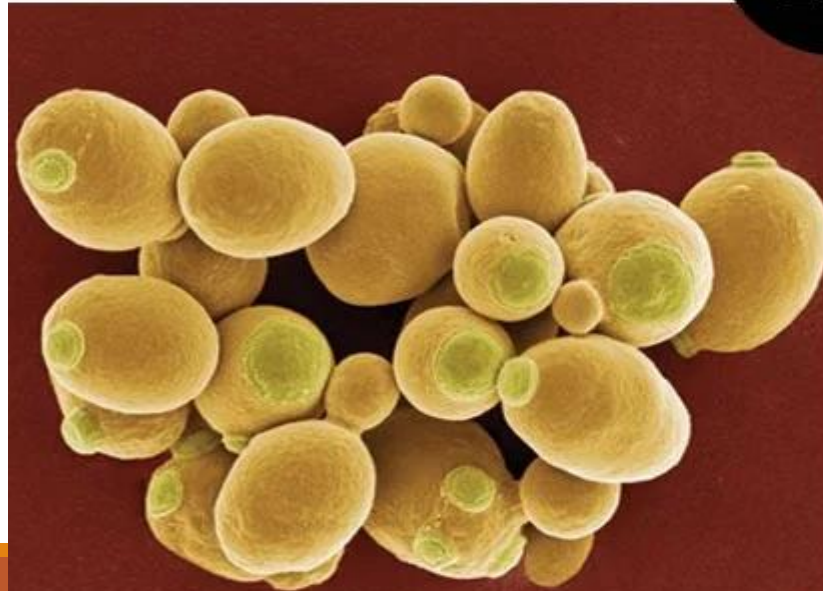


1-Ensuring product quality: By identifying and quantifying fungal contamination, producers can take necessary steps to maintain the quality of their products.

2-Protecting consumer health: Detecting harmful fungi and preventing their proliferation helps in safeguarding the health of consumers.

3-Maintaining consumer trust: Consistently high-quality products help in building and maintaining trust among consumers

Yeasts **VS** Molds



Cultivation of Fungi and Yeasts in the Laboratory

1-Preparation of Culture Media Use Sabouraud Dextrose Agar (SDA) or Potato Dextrose Agar (PDA) for fungi and yeasts. Dilute the sample if needed (e.g., serial dilutions: 10^{-1} , 10^{-2} , etc.).

2-Autoclave the media at 121°C for 15 minutes to sterilize. Pour into sterile Petri dishes and allow to solidify.

3-Inoculation Collect fungal or yeast samples using a sterile loop or swab.

4-Streak or spread the sample onto the agar surface. For yeasts, you can use a liquid broth like Yeast Extract Peptone Dextrose (YPD)

5-Incubation

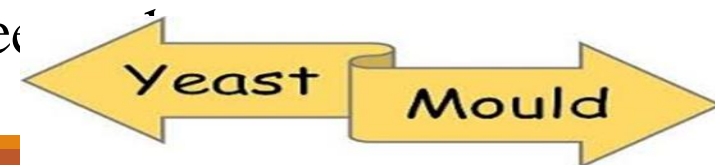
Fungi: Incubate at $25\text{--}30^{\circ}\text{C}$ for 3–7 days (or longer for slow-growing fungi).

Yeasts: Incubate at $30\text{--}37^{\circ}\text{C}$ for 24–48 hours

6-Observation & Identification Observe colony morphology, color, and texture. Perform

7-microscopic examination using Lactophenol Cotton Blue stain for fungi or Gram staining for yeast Storage Short-term:

8-Store plates at 4°C . Long-term: Use glycerol stocks at -80°C or freeze (lyophilization).



9–manual Colony Counting:After incubation, count the visible colonies on the agar surface.Use a colony counter or count manually with a marker or pen.Calculate Colony-Forming Units (CFU/ml or CFU/g)

$$\text{CFU} = \frac{\text{Number of Colonies}}{\text{Volume Plated (ml)}} \times \text{Dilution Factor CFU}$$

Example:

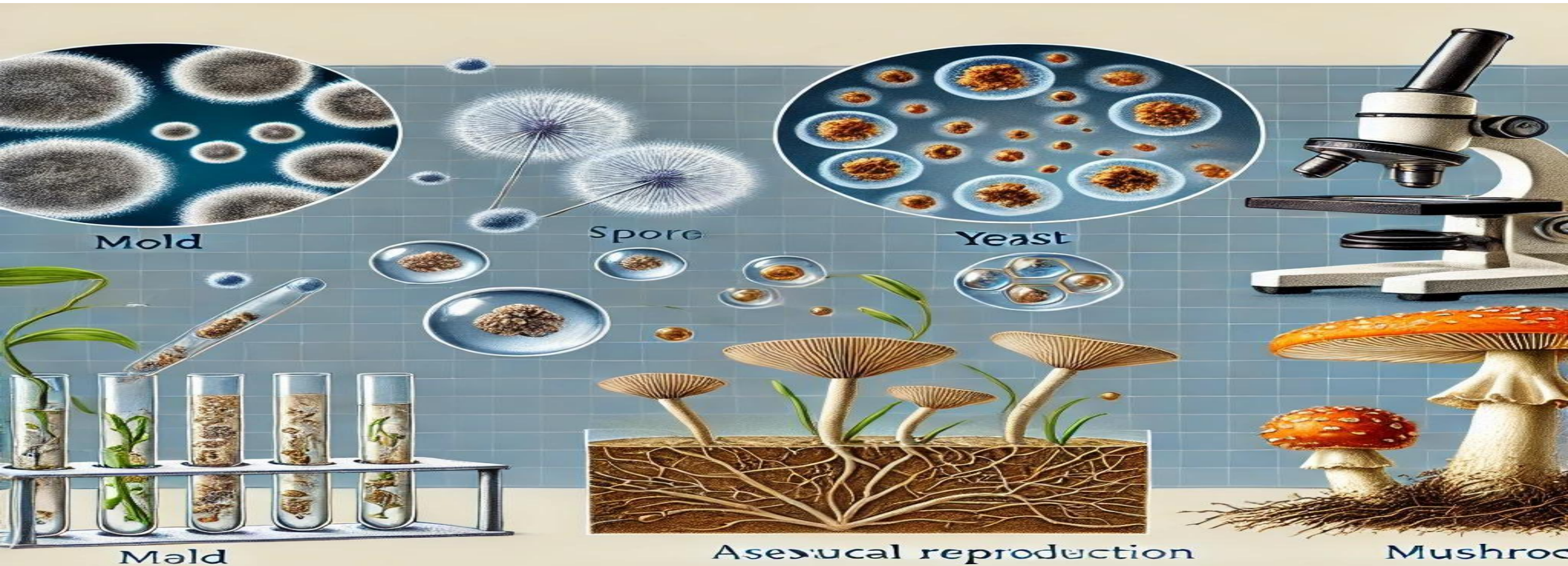
If you plated 1 ml of a 10^{-3} diluted sample and counted 30 colonies,

Then

$$\text{CFU} = 10^{-3} \times \frac{30}{1} = 30,000 \text{ CFU/ml}$$

10-Avoid counting plates with more than 100 colonies (Too Numerous To Count – TNTC)

11- choose plates with 30–100 colonies for accuracy.





Sabouraud Dextrose Agar (SDA)



A

Agar

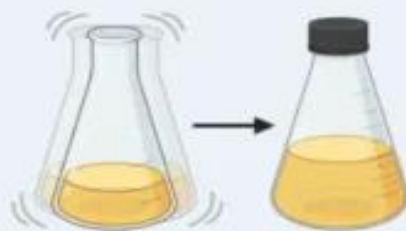


Measure the appropriate quantities



B

Pouring of medium powder in sterile deH₂O



C

Dissolution of medium by shaking and bottle enclosure



D

Sterilization of culture medium by autoclaving



LabTestsGuide.com



Candida albicans



LabTestsGuide.com

