

Single Cell Protein (SCP)

is a term used to describe microbial protein cultivated on organic waste materials for use as human food or animal feed. It provides an **economic alternative to conventional expensive protein sources.**

Types of Yeasts for SCP Production:

1. **Yeasts** have been consumed by humans since ancient times in fermented foods. They are particularly important for SCP production **due to their rapid growth and high protein content.**
2. Some yeast species suitable for SCP production include:
Wickerhamomyces anomalus, *Pichia kudriavzevii*, *Blastobotrys adeninivorans*.

Production Process:

The main process for SCP production involves **fermentation**.

This process follows several basic steps:

1. **Cultivation:** Yeasts are grown on agricultural or organic waste substrates.
2. **Fermentation:** Microorganisms multiply and produce biomass.
3. **Protein Harvesting:** The protein-rich biomass is harvested.
4. **Marketing and Business Plan:** SCP can be marketed as a protein source for human consumption or animal feed.

Advantages of SCP from Yeasts:

- A. **Shorter Doubling Time:** Yeasts grow rapidly.
- B. **High Protein Content:** SCP from yeasts contains a significant amount of protein.

C. **Less Reliance on Environmental Factors:** Unlike traditional protein sources, SCP production is less affected by soil, water, and climate conditions.

D. **Small Land Requirements:** SCP can be produced efficiently in a relatively small area².

Nutritional Quality of Yeast SCP:

Yeast is suitable for SCP production due to its **superior nutritional quality**.

In summary, SCP from yeasts offers a promising solution to handle with protein lacking and provide an economically viable alternative to conventional protein sources.

Examples for SCP

1-Mushrooms produce .

2-filamentous fungus

3- use of waste from wood processing (monosaccharides + acetate)

4-use as animal feed .

5- methanol (from methane - natural gas) as carbon source.