INTRODUCTION
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Oils and fats are very important and essential in human life and economy as dietary components and for technical uses. Traditional oils and fats are made available through agricultural oil crops like soybean, groundnut, caster, sunflower, rape etc. (which account for 80%) and through animal sources. The world demand of oils and fats are continuously increasing faster than the conventional means of production. Further the production by oil plants is subject to climatic variations and availability of land. Under these circumstances there is need for finding alternate source of fats and oils to meet future demands. India is not self sufficient in this essential commodity and every year several tons of oil is imported from countries like USA, Malasia etc.

Microorganisms have been reported to produce fats and oils. Recently microorganisms are receiving increased attention for their potential applications to the oils and fats industry either as a means of producing high quality fats including some high specialty lipids and also for being able to carry out selected biotransformation reactions which lead to higher value lipid products. Among the various oleaginous microbes yeast is an attractive candidate for the production of lipids, as their oil resembles closely to plant oils; especially in triacylglycerol content and fatty acid make up. There are reports on yeasts which could produce 60-70% of their biomass as fat under certain cultural conditions.
Objective

The objective of the present study was to develop a cost-effective fermentation process for the production of oils and fats in an Indian context by isolating and developing high-yielding oleaginous yeast strain.

Scope

1. Isolation of an oleaginous yeast from local soil.
2. Optimisation of process parameters for the growth of yeast strain.
3. Optimisation of pH, temperature and nutrient requirement for lipid accumulation.
4. Study the effect of various nutrient limitation on the lipid yield.
5. Selection of carbon substrate from technical and economic point of view.
6. Selection and design of a suitable fermentation technique to have high lipid productivity.
7. Study the effect of inoculum consisting of cells obtained at different stages of lipid production on lipid yield.
8. Study of the biotransformation of vegetable oils by the yeast.
9. Study of ergosterol content of the cells, an important agent to impart integrity and stability to the culture, as a function of process parameters.
10. Investigation of the production of any by-product of this process to make the process economically viable.