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Single cell protein to curb protein shortage worldwide

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With increase in population and protein shortage worldwide, researchers are looking for alternative protein sources. One of the most promising sources are found to be microorganisms like bacteria, fungi and algae. The refined proteins extracted from these microorganisms is called single cell protein. It can be said that this process of producing protein is very sustainable as it requires less area for development, is season independent, renewable, highly efficient and productive. Also, the microorganisms used can utilize waste and inexpensive feedstock as sources for carbon and energy to produce SCP. Hence it serves a dual purpose of producing protein and reducing pollution. Bacteria has high protein content and can grow rapidly in fermenters with methane as substrate. Although bacterial protein has high nutritive value due to higher protein, vitamin, amino acid and lipid content, the high nucleic acid content is harmful for humans and must be reduced which further adds to production costs. Algae uses sunlight and CO2 as substrates, but it requires large area and has slow production rate. Fungi are also grown in fermenters and can grow on any type of substrate like sugars, cellulose and even lipids. Fungi have meat-like consistency and therefore are most desirable. Filamentous fungi as protein sources are very much unexplored but have tremendous potential. Therefore, a lot of research is still required in this field. In the end, accepting SCP comes down to an individual's perception. Extensive educational programs and awareness is required to make the public accept single celled proteins.

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