

Use of Agro Industrial Wastes for Production of Biopigment by Fungus Using Solid State Fermentation

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Abstract Color is an influential *feature* which fascinates the consumers and helps in presumption, whether food is safe to consume or not. So adding color to food is a way to fulfil consumer's expectations. Natural colors from microbial sources, known as biopigments are of great interest as they are of potential benefits as compared to synthetic colors.

Fermentation technology (Solid state fermentation and submerged fermentation) is widely used for the production of different types of biopigments. Solid state cultivation is a process of growth of the microorganisms on the moist solid substrate, almost in the absence of water or near to absent but adequate moisture should be present into the substrate required for the metabolism and growth. Solid-state fermentation appears to be more lurking due various benefits it offers like Simplicity of culture media; liquid residues does not remain at the end of process; yield of product is usually higher in solid state fermentation. Microorganism like bacteria, yeast, fungus and algae can be used to produce pigments, but fungi are preferred over others due to their potential advantages including the ability to grow over wide range of substrates, which are cheap and easily available and is economical from the view point of production as it cut down the production cost. Keeping this in view, the media and process parameters for fermentative extraction of biopigment using *Monascus purpureus* MTCC 369 were optimized and agro-industrial waste was used as substrate for growth. Response Surface Methodology was conducted to design the experiments and analyse the result. The maximum biopigment production was obtained using sweet potato peel (7.8%), pea pod (3.9%), particle size of 0.25 mm and moisture content of 55% at 32 °C, pH 5.4 with 8.9 days of incubation. Under the optimized conditions, the maximum biopigment production of 22.50 (CVU/g) was extracted using ethanol (70%) as solvent.