

# Single Cell Protein Production from Papaw and Banana Fruit Juices Using Baker's Yeast

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**Abstract:** There has been an increasing world population that results the need of increase in the food production. Increased protein demand led to the search for new and cheap protein supplements than conventional protein. Single Cell Protein (SCP) is one of the solutions for the quality protein. This study was aimed to produce SCP using baker's yeast from banana and papaw fruit juices in the Liquid State Fermentation (LSF) system. Fermentation media composed of papaw/banana fruit juices 100ml/L (10%), MgSO 0.5g/L, NaCl 4 0.1g/L, CaCl 0.1g/L and KH PO 1g/L. This was inoculated with 0.5g/50mL of baker's yeast (pure culture of 2 2 4 *Saccharomyces cerevisiae*). Before optimization conditions, crude protein yielded 33.6% and 33.41% for papaw and banana as sole medium respectively after 24 hours of fermentation at 28°C with 100 rpm in a shaking incubator. The culture growing conditions of the fermentation processes were optimized individually, higher crude SCP yield was obtained after 72 hours of fermentation at 30°C using 40.36 % and 40.29% for papaw and banana media respectively. When the carbon source was replaced with 5% of each fruit juices, the crude protein yield was increased to 41.8% and 40.87% for papaw and banana medium respectively. Comparative study revealed that papaw medium yielded significantly higher protein content (1.244 times) than that of the banana medium (1.22 times) with baker's yeast, after the optimization. This study revealed that papaw and banana fruit juices could be used as effective carbon sources to produce SCP using baker's yeast.

**Key words:** Baker's Yeast, Banana Fruit Juice, Papaw Fruit Juice, Single Cell Protein