Production of Animal Feed Protein from Vignaunguriculata and Cicerarietinum

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Abstract*: *Single cell proteins are rich essentialin nutritive aminoacids,the building blocks of protein are highly essential for the maintenance of the living system. SCP is used as animal feed and dietary rich food for humans. Many raw materials are used for the production of SCP. This work was carried out to extract a single cell protein from yeast using Vignaunguriculataand Cicerarietinums substrate. The maximum yield of crude protein was observed in 15days of. Fermentation.

***Index Terms*: *singlecelprotein,nitrogen,carbon,fermentation*.**

I. INTRODUCTION

The rapid increaseof population and rapidly declinewasteof natural resources have showed drought, infertile soil and food scarcity, specifically protein shortages in world countries since the latter half of 20th century. Single Cell Protein production has evolved as angood alternative. The dried cells of microbes produced commercially as source of essentialaminoacids and used as human food or animal feed whichare collectively known as SCP[1-4].

Yeasts,anunicellular microbeis readily suitable to cultivation of protein rich food and to manipulate process needs[4-8]. Thus in a considerable advancement in biotechnology to make yeast based food and animal feed products.Theproduction stands as the goodalternative to supplement the requirements of protein rich food and feed-grade protein, vitamins and amino acids[10,11]. Pulse husks are rich source of protein which increases the quality of proteins Highlight a section that you want to designate with a certain style, and then select the appropriate name on the style menu. The style will adjust your fonts and line spacing. **Do not change the font sizes or line spacing to squeeze more text into a limited number of pages.** Use italics for emphasis; do not underline.

II MATERIALS AND METHODS

Aspergillus niger was extracted from onion and cultured in a nutrient of potato dextrose agar media. Cassava pulp was washed, sliced and dried hot air oven at 60°C. This dried sample was powdered and subjected into acid hydrolysis and autoclaved for 20 minutes. The hydrolyzed materials were subjected to fermentation medium [8].

The fermentation media was enriched with cassava powder. Its approximate composition was determined. Different carbon sources of sucrose, glucose, maltose and nitrogen sources of ammonium chloride, potassium di hydrogen phosphate ammonium per sulphate and ammonium e were used for its optimization. The fermentation process was carried outat300ºC for 20 days[9,10].

Different carbon and nitrogen enriched media was carried out after three days of incubation. These were filtered into a clean beaker with the help of what mann no.1 filter paper.1 M NaOH was prepared and taken in burette .The filtrate was titrated against NaOH with phenolphthalein as indicator till pink color appears. The readings were noted and amount of citric acid produced was calculated[11].

III RESULTS AND DISCUSSION

Protein rich in legumes were subjected to submerged fermentation for production of SCP from yeast using cowpeaand chick peahusks substrate [23,24]. The different carbon sources used were glucose,fructose, lactose and maltose. Production of SCP is enhanced on a nitrogen source of urea and peptone[18-20].

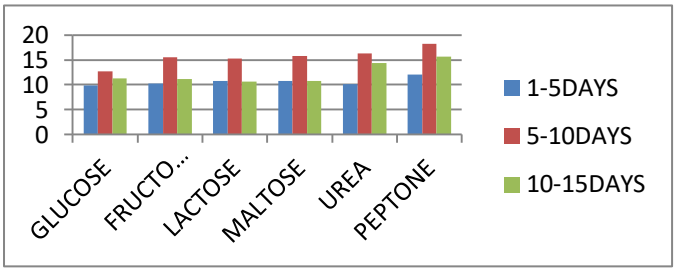

Figure1:Protein profile in different carbon and nitrogen sources

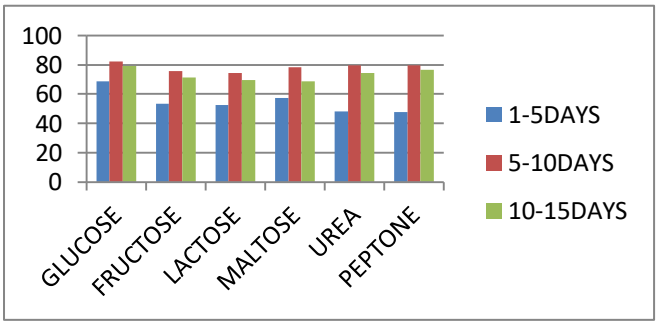

Figure2:Carbohydrateprofile in SCP yield at carbon and nitrogen sources

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The nutritive source of cowpea husk and chick pea husk were analyzed byvarious biochemical assays. The nutritive value ofpulseshuskwere changed when treated with anaerobicfungi. The protein concentration incowpea husk was found to be rapid increase in fructosesubstituted medium (8.2mg). It attainedgoodproduct of 9.2mg in 6-10days of fermentation, but rapidly reduced to 4.4mg of protein (Fig 1,2). The nitrogen source of peptone was found to berapid yield of 7.5mg in last stages of fermentation. Similar results were also observed in green gram and Bengal gram husk[21,22]. The carbohydrate was found to be better in fructose enriched medium (51.8mg) in final stage of fermentation. The sugar was gradually raised from 6-10days and slowrate ofreduction at15days of fermentation. The sugar content was found to be low in nitrogen rich of urea and peptone at starting stage of fermentation but rapidly raisedto 57.5/100mg in final fermentation (Fig 2). These changes indicated the rapid uptake of carbon and nitrogen sources for stimulation of protein enriched product [23].

Glucose enriched medium showed maximum amount of carbohydrate (84.4mg) in 6-10days of process. The carbohydrate was found to be higher in lactose substituted medium. The nitrogen sources of peptone and urea enriched medium showed 41mg of carbohydrates than carbon enriched medium

IV. CONCLUSION

The product of SCP in an yeast medium along with nutrient source of husk of*unguriculataandCicer*were possible by submerged fermentation. The quality of SCP depends on the nutritive source of waste used and stages of product . The supplementation of sugar andammonium rich constituents were utilized by microbes to stimulate SCP production.

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