ABSTRACT

The present study deals with the nutraceutical properties of Soya bean, rice polish, wheat bran, and potato peel powder in combination with nitrogenous sources with different yeast extract ranges
under different medium settings were investigated by solid state fermentation approach using *Aspergillus* Sp. FBN-1. An optimized aqueous media with 10g/7ml of each powder were tested and potato peel powder was selected as media source for cost-effective growth of β-carotene. The
media then optimized to obtain maximum growth. Different nitrogenous sources such as ammonium phosphate, ammonium nitrate, urea, peptone and yeast extract and salts such as NaCl,
$MgSO_4$, $ZnSO_4$ and $FeSO_4$ were applied at different pH and temperatures. 10g of potato peel with
0.4 gram yeast extract, 0.6 g $MgSO_4$ salt, at 25 °C temperature and pH of 5.6 showed the maximum
growth of *Aspergillus* Sp. FBN-1 as well as β-carotene. β-carotene was determined by the correlation of the standard curve obtained from the standard solutions by spectrophotometry technique with the curve obtained from the solutions extracted from the cell mass of fungal strain.

It proved that β-carotene contents are maximum at the media prepared with potato peel powder, and can be administered for optimization with different instruments for further application. According to the findings, among different raw materials of agriculture sector, potato peel could be utilized as a useful supplement for β-carotene production for nutraceutical, food and cosmetic industries.