

# 3<sup>RD</sup> WORLD BIOTECHNOLOGY CONGRESS

December 03-04, 2018 Sao Paulo, Brazil

## Fermentation conditions for the production of flavonoids from *Streptomyces hygroscopicus* AVS7 by statistical approaches

Vellingiri Manon Mani<sup>1,2</sup> and Arockiam Jeyasundar Parimala Gnana Soundari<sup>2</sup>

<sup>1</sup>Hindusthan College of Arts and Science, India

<sup>2</sup>Bharathiar University, India

**I**ntroduction: Statistically optimized fermentation conditions for the maximized pigmented metabolites production from *S. hygroscopicus* AVS7 isolated from western ghats regions was estimated using basic economical carbon and nitrogen sources. Normally in Starch Casein Broth (SCN), the strain AVS7 produced about 2.92g/L of metabolites from the biomass. In order to increase metabolites production, the parameters were optimized using statistical experiments with Design expert software. Basic parameters pH, temperature, incubation period, carbon and nitrogen sources were optimized using one factor at a time experiment and the highest production profile remarked by pH, temperature and incubation period were kept as constant. The factors were evaluated for Plackett-Burman design and under this factorial design three significant factors potato pulp, sucrose and maltose influenced the highest pigmented metabolite production. These three factors were further investigated using Response Surface Methodology (RSM) Box Behnken design; the results were displayed as a contour and 3D surface plots. The analysis of variance implied the model to be significant with a p-value of 0.0011 and lack of fit was not significant. The production of metabolites in RSM was 4.91g/L which was 2 fold increases from the basic medium. Finally, the model was validated and the highest response area was targeted as an optimized medium for maximized metabolite production. The pigment production was 2.98g/L in normal medium and it was about 4.91g/L in the optimized medium. The pigment showed a two-fold increase through optimization. This optimized medium was taken for further studies. The crude metabolite extract was purified under chromatographic techniques using a gradient solvent system. About six fractions were eluted from the preparative HPLC system and antimicrobial assessment was carried out for all the fractions, in which fourth fraction F4 explicit highest antimicrobial profile. This fraction F4 was taken a spectral range which displayed a peak at 527nm and it was also determined for flavonoids presence. This study explores the biomolecule and its fermentation conditions to increase its production to explore the anticancer potentiality by animal models. This is the first report in the production of secondary metabolites from an actinomycete- *S. hygroscopicus* AVS7.

manonmanisathee12@gmail.com

Notes: