ABSTRACT

The aim of the research work was to optimize the production of pyrazoloisoquinolinones (APHE) antibiotics from *Streptomyces griseocarneus* NRRL B1068 by submerged fermentation technique. The influence of five media, different incubation temperatures, pH of the medium, time of incubation, and effect of different carbon and nitrogen sources on the APHE antibiotics was observed. The antimicrobial activities of the fermentation broth were analyzed by measuring the zones of inhibition against *A.niger, E.coli and B.subtilis* by agar well diffusion method. The modified mineral basal (MMB) medium composed of (g/L), potassium dihydrogen phosphate, 3.24; dipotassium hydrogen phosphate, 5.65; hydrated magnesium sulphate, 1.0; and 1 ml stock solution of salts (ferrous sulphate, 0.1; manganese chloride, 0.1; and zinc sulphate, 0.1) supplemented with 7.5% glucose and 2.0% lysine was found to be best medium for fermentation. It produced highest zones of inhibition of 40mm, 25mm and 24mm against *A. niger, E. coli and B. subtilis,* respectively. The maximum zones of inhibition of 30mm, 22mm and 21 mm were produced after 7th day of incubation. The highest production of APHE antibiotics was obtained at 30°C with the inhibition zones of 35mm, 25mm and 24 mm against *A. niger, E. coli and B. subtilis,* respectively. The highest production of APHE antibiotics were achieved at the neutral pH of 7.2 with the mean zones of inhibition of 35mm, 25mm and 24mm against *A. niger, E. coli and B. subtilis,* respectively. The MMB supplemented with 8 % and 2 % lysine was identified as the best carbon and nitrogen sources to produce maximum yield of APHE antibiotics. The ammonium sulphate was identified as the best inorganic nitrogen source and produced inhibition zones of 15mm, 12mm and 9mm against *A. niger, E. coli and B. subtilis,* respectively. The maximum production of APHE antibiotics was achieved at the inoculum volume of 3 % with mean zones of inhibition of 14mm, 12mm and 13mm against *A. niger, E. coli and B. subtilis,* respectively.