Apurba Dey et al., J Drug Metab Toxicol 2016, 7:3 (Suppl)
http://dx.doi.org/10.4172/2157-7609.C1.005

Strategies for improved production of Rapamycin using sequential UV mutagenesis study by *Streptomyces ghanaensis* MTCC 4003

Apurba Dey and Subhasish Dutta
National Institute of Technology, India

An extensive mutation work has been carried out to improve the rapamycin (antibiotic) yield by *Streptomyces ghanaensis* MTCC 4003. Mutational approach i.e., sequential UV mutagenesis was applied to the spores with an aim of increasing the stability along with higher rapamycin synthesis. 30 watt lamp with 254 nm UV-C category light was used for mutagenesis experiment. Around 6% survival rate (94% killing ratio) was achieved after final spore count by Haemocytometer on 21st day of incubation. Numerous colonies were obtained after primary screening of mutants, of which some were deteriorating in nature and rest maintained rapamycin producing activity. Preliminary experiments were carried out by Agar disc diffusion method using *Candida albicans* MTCC 227 as test organism and validation/purification was performed with HPLC. Concentration of Rapamycin from fermentation broth was calculated using standard curve prepared between known concentration of rapamycin vs inhibition zone diameter. Average rapamycin production by different UV mutants were found as follows: UV-30-17 127.73mg/L, UV-45-11 89.66mg/L, UV-60-9 84.33 mg/L and UV-90-5 76.33mg/L. Among all UV induced mutants, UV-30-17 showed highest Rapamycin yield which is 1.61 fold higher than that of the wild type or untreated strain (79.23mg/L). The strain was further selected for higher production using statistical design approach.

Biography

Apurba Dey has completed his PhD from IIT Delhi and Postdoctoral studies from University of Malaya, Malaysia. He is having 22 years of teaching, 2 years industrial and 25 years of research experience. Presently he is working as a Professor in the Department of Biotechnology, National Institute of Technology Durgapur, India. He has published more than 45 research papers in reputed journals and supervised 10 PhD students.

apurbadey.bt@gmail.com

Notes: