ABSTRACT

The present study is concerned with the production of lincomycin production by *Streptomyces lincolnensis* in the batch fermentation. The presence of lincomycin was tested against *Micrococcus* species by agar well method and in addition to its detection through thin layer chromatography (TLC) and high performance liquid chromatography (HPLC). From different media, the M6 medium consisting of glucose (15 g/L), starch (40 g/L), molasses (20 g/L), corn steep liquor (20 g/L), peptone (10 g/L) and CaCO3 (8.0 g/L) was found best for growth of *Streptomyces lincolnensis* and production of lincomycin. Optimum incubation temperature, pH and incubation period for the production of lincomycin by *Streptomyces lincolnensis* were 30° C (64.6 mg/ml of dry cell mass with 3.12 mm diameter of inhibition zone), 7.5 (78.3 mg/ml of dry cell mass with 3.19 mm diameter of inhibition zone) and 144 hrs (80.8 mg/ml of dry cell mass with 3.3 mm diameter of inhibition zone), respectively. For maximum production of lincomycin by *Streptomyces lincolnensis*, different carbon sources, organic and inorganic nitrogen sources were also studied. 4% of lactose (82 mg/ml of dry cell mass with 3.3 mm diameter of inhibition zone) as a carbon source, 8% of meat extract (81.1 mg/ml of dry cell mass with 4.1 mm diameter of inhibition zone) as an organic nitrogen source and ammonium nitrate (82.4 mg/ml of dry cell mass with 5 mm diameter of inhibition zone) as an inorganic nitrogen source were optimized. The inoculum quality and quantity were also optimized for high yield of lincomycin. 2% of 72 hrs old vegetative inoculum of *Streptomyces lincolnensis* NRRL ISP 53SS in the form of pellet was found best for the growth of *Streptomyces lincolnensis* and subsequent lincomycin production in shake flasks.