ABSTRACT

Nicotine, a toxic alkaloid in nature has been regarded as harmful chemical compound for human health and environment. Various bacterial species were adjusted to degrade this heterocyclic compound including *Arthrobacter* and *Pseudomonas*. This work explained the isolation and description of nicotine degrading enzyme from bacterial strain isolated from soil of tobacco field. Nicotine was extracted from cigarette leaves and used as sole source of nitrogen and carbon for bacterial growth. The bacterial strain was identified as *Pseudomonas pseudolac* by API 20NE biochemical testing. The physical characteristics and structural morphology was identified by Gram's staining, scanning electron microscope (SEM) analysis. The optimum conditions for these microbes were pH 6.5, temperature 30°C at 120rpm. The optimum concentration of nicotine was 1 g/L for growth of bacteria. The nicotine degrading enzyme was isolated by ultra-sonication of bacterial cells. The degradation was efficient by intracellular enzyme a compare to extracellular enzyme. The degradation of nicotine was detected by calorimetric assay and UV spectroscopy.