



Bioconversion, Purification and *In Vitro* Antibacterial Activity of Platenomycin A1

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SUMMARY. Platenomycin A1 is one type of 16-membered macrolide antibiotics, which had been shown to inhibit the Gram-positive bacteria growth. In this study, the bioconversion of platenomycin A1 from midecamycin in *Streptomyces thermotolerans* was investigated. With optimized growth conditions, platenomycin A1 production reached to 5.654 g/L. In addition, the platenomycin A1 separation and purification procedures were developed based on pH adjustment and ODS reversed phase chromatography refinement, which led to a purity up to 97.74%. Minimum inhibitory concentrations (MIC) of purified platenomycin A1 against representative gram-positive and gram-negative bacteria strains were also determined, which displayed active inhibition against *Staphylococcus aureus* (ATCC29213), *Streptococcus pneumoniae* (ATCC49619), septic *Streptococcus* (CVCC593) and porcine *Actinobacillus pleuropneumoniae* (CVCC260).

RESUMEN. Platenomycina A1 es un tipo de antibióticos macrólidos de 16 miembros, que inhibe el crecimiento de bacterias Gram-positivas. En este estudio se investigó la bioconversión de platenomycina A1 a partir de midecamicina en *Streptomyces thermotolerans*. Con las condiciones de crecimiento optimizadas, la producción de platenomycina A1 alcanzó a 5.654 g/L. La separación de platenomycina A1 y los procedimientos de purificación se desarrollaron sobre la base de ajustes de pH y cromatografía de refinamiento en fase reversa ODS, logrando una pureza de hasta 97,74%. También se determinaron las concentraciones inhibitorias mínimas (CIM) de platenomycina A1 purificada contra cepas de bacterias gram-positivas y gram-negativas representativas, que mostraron una inhibición activa contra *Staphylococcus aureus* (ATCC29213), *Streptococcus pneumoniae* (ATCC49619), *Streptococcus* séptico (CVCC593) y *Actinobacillus pleuropneumoniae* porcino (CVCC260).

KEY WORDS: Antibacterial activity, Bioconversion, Midecamycin, Platenomycin A1, purification.

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