Title: **Bibliographic review on amino-acyl adenylate antibiotics**
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Increasing bacterial resistance to existing antibiotics, along with decrease in research and development spending in the pharmaceutical industry, is a major threat to global health. New antibiotics or improvement of the effectiveness of the existing ones is necessary to combat the increase in drug-resistant infections. For this reason, we review the latest advances in enzymatic inhibition of aminoacyl-tRNA synthetases, which are essential enzymes in the biosynthesis of proteins.

Although there is a wide variety of natural inhibitors that mimic aminoacyl-tRNA structure, we focus on microcin C, which is a natural Trojan Horse peptide-adenylate that inhibits aspartyl-tRNA. Subsequently, synthetic pathways and antibacterial activity of microcin C analogues are studied. Currently, the most promising aspartyl-tRNA inhibitors are aminoacyl-sulfamoyl-adenylate compounds. Modifications in its structure have been carried out to improve its transport and the release of the toxic moiety within the bacterial cell.

Keywords: antibiotics, aminoacyl adenylate, natural inhibitors, microcin C, pharmaceutical drug synthesis.