Int. J. Antimicrob. Agents, 22, 223-227 (2003).

Enhancement of plasmid curing by 9-aminoacridine and two phenothiazines in the presence of proton pump inhibitor 1-(2-benzoxazolyl)-3,3,3-trifluoro-2-propanone.

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Plasmid-containing bacteria often cause serious therapeutic failure during the treatment of infectious diseases. The antiplasmid effects of promethazine and 9-aminoacridine were studied on plasmid elimination of native plasmid DNA and plasmid DNA isolated from drug-treated cells of plasmid-containing Escherichia coli, Citrobacter freundii and Enterobacter cloacae. The effects of some phenothiazines on plasmid profiles of bacterial strains isolated from urinary tract infections were analysed by agarose gel electrophoresis. Various complex of plasmid DNA were identified in the presence of promethazine, trifluoperazine and 9-aminoacridine in the agarose gel electrophoresis. Doxycycline resistance of tested enteric bacteria was the target of "curing" in the presence of promethazine and trifluoperazine. The frequency of elimination of tetracycline resistance was low despite the formation of antiplasmid compounds complex with isolated plasmid DNA. Tetracycline resistance plasmid was isolated and re-transformed. The plasmid curing effects of promethazine, trifluoperazine and 9-aminoacridine were increased in the presence of a trifluoroketone proton pump inhibitor on *E. coli* K12 LE140 strain in a model experiment. We propose that the inefficient penetration of antiplasmid compounds could be responsible for the weak plasmid-curing effect in some clinical isolates and that membrane active, calmodulin- and proton pump inhibitors may be combined for plasmid curing in antibiotic-resistant bacteria.