

ABSTRACT

Charles University, Faculty of Pharmacy in Hradec Králové

Department of Biological and Medical Sciences

Study program: Bioanalytical laboratory diagnostics in health care

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Title of diploma thesis: Effectiveness of disinfectants for hygienic hand disinfection against clinically important strains of enterococci

Alcohol-based hand disinfectants for hygienic hand disinfection are a key tool for the control of nosocomial infections worldwide. The aim of this study was to verify the effectiveness of these products, which are used in healthcare facilities, against vancomycin-sensitive and vancomycin-resistant enterococci isolated from clinical materials.

Testing of the efficacy of disinfectants was performed according to the Czech technical standard ČSN EN 1040 - Chemical disinfectants and antiseptics - Quantitative test using suspension to determine the basic bactericidal effect of chemical disinfectants and antiseptics - Test method and requirements (phase 1). We used the dilution method with a neutraliser for our testing. There were used a total of 35 strains of enterococci to determine efficacy, 12 of which were vancomycin sensitive (four *E. faecium* strains and eight *E. faecalis* strains) and 23 were vancomycin resistant *E. faecium* strains.

We tested the efficacy of seven alcohol disinfectants containing different types of alcohols. We observed a lower reduction in the amount of bacteria for all disinfectants than is required by the standard to confirm the sufficient effectiveness of the product. Thus, the bactericidal efficacy of the selected alcohol disinfectants against clinically relevant enterococcal strains was not confirmed.

Hygienic hand disinfection is an essential part of preventing the transmission of infectious agents. Nowadays, its use has spread to the general public, so it is important that alcohol disinfectants are reliable and with a broad spectrum of efficacy. Research of the efficacy of disinfectants against pathogens is therefore essential and needs to be continued.

Keywords: enterococci, VRE, alcohol disinfectants, hygienic hand disinfection