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PS-029. Alternative Method Study for Determining Bactericidal Efficacy of Antimicrobial Paints

Sennur Çalışkan Özdemir, Ece Halat, Aslı Şahiner
Ege University, Faculty of Science, Department of Biology, Izmir, Turkey

Antimicrobial paints contain various active substances to inhibit or reduce growth of microorganisms. Interior and exterior wall paints with antimicrobial substances developed in recent years started to be used in several areas with high infection risk primarily in hospitals. In this study wall paints with 4 different active substances from market were tested against S. aureus (ATCC 6538) and E.coli (ATCC 10536) to determine and compare the bactericidal efficacy according to ISO 22196. Within the scope of this study, cellulose filter papers were cut 5 x 5 cm of size and painted with antimicrobial paints. Paint without antimicrobial substances were used as control for this test. Painted filter papers were left to dry for one week. Painted filter papers and film coatings were exposed to two sided UV sterilization. Suspension was prepared from 24 h bacterial cultures with 105 cfu/ml concentration. 100 µl of bacterial suspensions were inoculated on painted surfaces. After inoculation, surfaces were coated with sterile parafilms. After 1, 3, 6 and 24 hour contact times in 37°C, filter papers were transferred to bottles filled with SCDLP broth. Serial dilutions were prepared and inoculations were made through pour plating method. Petri dishes were incubated in 37°C for 24 h. Bactericidal efficacy of 4 different active substances and 4 different contact times were determined. Paint with 0.10% zinc prythion provided 99.2% reduction against S.aureus at the 3rd hour, all other active substances provided 99% reduction at 6th hour. Paint with 0.2 % AgCl provided 99.98% reduction against E.coli at the 3rd hour. In conclusion, this study indicates that antibacterial efficacy of 4 antibacterial paints with different active substances against E.coli and S.aureus start to increase after 6th hour. It was also observed that shorter contact time was effective with zinc prythionon Gr (+), AgCl on Gr (-).

Keywords: Antimicrobial paint, bactericidal efficacy, Zinc prythion, Silver chloride