Abstract

Charles University in Prague

Faculty of Pharmacy in Hradec Králové

Department of Biological and Medical Sciences

Candidate: Petra Čechová

Consultant: PharmDr. Petr Jílek, Csc.

Title of Thesis: Antimicrobial additives and their use in top coating paint.

Background:

Evaluation of efficacy in antimicrobial photocatalytic paint designed by Synpo a.s. Pardubice Company (AMAc-1, AMAc-2, AMAc-3, AMAc-4, AMAc-5);

Composition of paint unknown (we only known that paint include photocatalytic additives);

Pathogen bacterial strains: *E. coli*, *S. aureus*, *P. aeruginosa*.

Methods:

Contact of microbes with antimicrobial photocatalytic paint: pre-activated with UVA-light, activated with UVA-light at the same time, non-activated with UVA-light.

Main findings:

Graphs show how number of CFU microbes is changing in time;

Definition of efficacy (-k): negative value of tangent of line linear regression.

Conclusions:

Confirmation of hypothesis: grow of efficacy of antimicrobial photocatalytic paint after exposition UVA-light;

Influence on fall of number microbial CFU of strain *E. coli*; Significant after UVA irradiation (activation);

S. aureus: fluctuating of results, all the same definite fall of bacterial CFU after activation UVA-light;

Most resistant to efficacy of antimicrobial paint was *P. aeruginosa*;

Influence of various concentration ZnO (Zinc oxide) in paint on efficacy;

AMAc-1: control paint (included no concentration of photocatalytic ZnO).