

PREDICTING OF BACTERICIDAL ACTIVITY OF CHEMICAL DISINFECTANTS USING DISINFECTION ACTIVITY COEFFICIENT OF SOLUTION

Biljana Gjorgjeska

University "Goce Delcev", Faculty of Medical Sciences, Štip, Republic of. Macedonia

There is the need for defining standard technique for quantitative determination of bactericidal activity of chemical disinfectant substances, as well as the need for defining parameter for comparing various chemical disinfectants. The methods which are usually used for evaluation of antiseptic activity of disinfectant aqueous solutions are microbiological.

The aim of this study is to use empirical coefficient which is capable to express the various physic-chemical properties of disinfectant solutions on bactericidal activity. The basic duty of this parameter (Disinfection Activity Coefficient of Solution - DACS) is to express capability for comparison and prediction of disinfectant activity. The DACS index, which is the sum of four terms (fluidity, surface tension, redox potential and osmolality), results in good correlation with the activity at different disinfectant aqueous solutions. The DACS index can be calculated using additive and statistical models. The usefulness of DACS is demonstrated for analyze of bactericidal activities on different disinfectant solutions containing boric acid, chlorhexidine, chlorhexidine with cetrimide, chloroxylonol, chlorophen, eosin, hydrogen peroxide, phenyl mercury borate, povidon-iodine, thiomersal, tosilchloramide and phenol. Results for bactericidal activities obtained from microbiological tests on *Staphylococcus aureus* was compared with activities predicted with DACS.

As the conclusion, it is considered good correlation between experimental and calculated values for bactericidal activity of different disinfectant solutions for short time of exposition. It is pointed out that the DACS index can be used in studies for prediction of disinfectant activity.

Biljana Gjorgjeska, Faculty of Medical Sciences, Krste Misirkov bb, POB 201, 2000 Štip, Republic of Macedonia, tel. +38932550434; biljana.gorgeska@ugd.edu.mk