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**Evaluation of the
effectiveness of

CHEMISEPT G

against
Herpes Simplex Virus type 1**

Test method according to guideline of BGA and DVV

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4.5 Calculation of the virucidal activity

The virucidal effect of the test disinfectant was evaluated by calculating the decrease in titre in comparison with the control titration without disinfectant. The difference is given as reduction factor (RF).

5. Results

In parallel with the inactivation tests, cytotoxicity of the 0.7% formaldehyde solution and of the hand disinfectant CHEMISEPT G was measured. The formaldehyde solution was toxic for the BGM cells in the 1:1000 dilutions. This corresponds to a $\log_{10}CD_{50}/mL$ of 4.50. Examinations showed that the hand disinfectant (80.0%) had a $\log_{10}CD_{50}/mL$ of 2.50 (cytotoxicity in the 1:10 dilutions).

These tests to measure cytotoxicity are imperative, because in this way the lower detection threshold for non-inactivated HSV type 1 is determined.

Results of inactivation tests are found in table 2 (raw data see appendix). There is no graphic presentation of the results since no kinetics of inactivation is visible.

Formaldehyde (0.7%) reduced the HSV titre after five and 15 minutes by ≥ 2.38 and ≥ 2.63 \log_{10} steps. A reduction factor of ≥ 2.63 was measured after 30 and 60 minutes contact time (table 2).

The hand disinfectant CHEMISEPT G was examined undiluted. Due to the addition of virus suspension and interfering substances a test concentration of 80.0% resulted. Exposure times were 0.5, 1.0, 2.0 and 5.0 minutes.

Testing CHEMISEPT G undiluted (80.0%), after an exposure time of 30 seconds a reduction of the virus titre was measured (table 2). The reduction factors were ≥ 4.63 (assay without soil load), ≥ 4.25 (assay with BSA) and ≥ 4.38 (assay with FCS). At this exposure time, no HSV could be detected in all assays. These values correspond to an inactivation of $\geq 99.99\%$ meaning virus-inactivating properties. According to the guideline of BGA/DVV (1,2) and EN 14476:2005 (6), a disinfectant or a disinfectant solution at a particular concentration is having virus-inactivating properties if within the recommended exposure period the titre is reduced at least by four \log_{10} .

Due to the lack of guidelines simulating practical conditions, the results of the quantitative suspension test lead to the recommendation to use the hand disinfectant CHEMISEPT G for the inactivation of Herpes Simplex Virus type 1 as follows:

undiluted

30 s



Dr. J. Steinmann