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Assessing the efficacy of some commercially available disinfectants and antiseptics

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Disinfectants and antiseptics are chemical agents that are used to control microorganisms. The objectives of this study were to assess the efficacy of some selected disinfectants/antiseptics at the manufacturer-recommended dilution (MRD) and to compare the efficacy of each product at serial concentrations of MRD. Commercially available disinfectants/antiseptics containing benzalkonium chloride (A), sodium hypochlorite (B), chlorinated phenol (C) and phenol (D), were used in this study. Sterile filter-paper discs were dipped separately in different concentrations of each product ranging from the MRD to its serial concentrations. The discs were then incubated on agar plates pre-spreaded with *Staphylococcus aureus* cultures. Mean diameters of inhibitory zones (ZI) were measured and statistically analyzed for differences with different products. The efficacy of each disinfectant/antiseptic was assessed according to (ZI). Product D showed the highest efficacy whereas product A showed the least efficacy at the MRD. There was no difference in the efficacy of MRD, and its two-fold increase, with product A. In contrast, products B and C showed an increase in the efficacy ($p<0.01$) with each two-fold increase in the product concentration starting from the MRD. With reference to product D, no difference was observed with the efficacy of MRD and its two-fold increase. Further increase of product concentration (from two-fold to four-fold) showed a decrease in efficacy ($p<0.01$). In conclusion, all disinfectant/antiseptic products of this study were effective at the MRD. However, the degree of efficacy was different ($p<0.01$) among products. Certain products (A & D) showed no increase in efficacy ($p>0.01$) at two-fold increase of MRD but showed increase in the efficacy ($p<0.01$) at higher concentrations.

Key words: Antiseptics, disinfectants, efficacy, manufacturer-recommended dilution

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