

## The potential use of chlorhexidine (CHX) and hexetidine-containing mouth rinse in maintaining toothbrush sterility

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Abstract: The study was carried out with the aim of demonstrating quantitatively the presence of microorganisms adhered to toothbrush bristles and to determine the potential of using antimicrobial agent (such as chlorhexidine gluconate (CHX) and hexetidine (HX)) in commercialized mouth rinses to reduce microbial contamination. The study was carried out by enumerating the total colony counts of bristles-adhered microbes after three weeks of normal oral hygiene followed by rinsing the toothbrushes with CHX, HX, tap water and deionized water independently following a strict planned schedule. Rinsing toothbrush with tap water was included in the study as a control due to the normal way of cleaning toothbrush after use in every home. Whereas, sterilized deionized water do not contain any ions, minerals and is microbes-free. The total colony counts of microbes obtained from the toothbrush rinsed with tap water, deionized water, CHX and HX were  $62.6 \times 10^6$  CFU mL<sup>-1</sup>,  $74.4 \times 10^6$  CFU mL<sup>-1</sup>,  $2.4 \times 10^6$  CFU mL<sup>-1</sup> and  $7.6 \times 10^6$  CFU mL<sup>-1</sup>, respectively. *Staphylococcus aureus*, *Actinomyces naeslundii* and *Clostridium* sp. were isolated from toothbrush rinsed with tap water. *Staphylococcus aureus* and *Peptostreptococcus* sp. were obtained from toothbrush rinsed with deionized water. *Actinomyces* sp. and *Clostridium* sp. were recovered from toothbrush rinsed with CHX and only *Staphylococcus aureus* was obtained from toothbrush rinsed with HX. Although toothbrush rinsed with mouth rinses containing antimicrobial agent such as CHX and HX still harbour microorganisms, but the microbial load has been very much lowered compared to the control toothbrush. Thus, this indicates that toothbrush rinsing with mouth rinse after the normal oral hygiene is very convenient and cost effective to reduce toothbrush contamination.

Author	<ul style="list-style-type: none"><li>• Himratul-Aznita, W. H.</li><li>• Fathilah, A. R.</li></ul>
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