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Drinking Water Quality from Coolers and Taps
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Purpose of the study: The objectives of the study were to determine the microbial carriage of drinking water obtained from several heavily utilised water coolers and taps of Faculty of Dentistry, University Malaya. The quality of water from both sources was based on the presence of several known microbial indicators. The effectiveness of the filtration systems in the coolers and main storage tanks was assessed.

Materials and Method: Water was sampled in sterile Schott bottles from water coolers and taps located in Balai Ungku Aziz (BUA) and Main Buildings (MB) of the Faculty of Dentistry, University Malaya. The samples were analysed for (i) the total microbial load and (ii) the presence of common microbial indicators of drinking water that included the total coliforms, faecal coliforms, E. coli, faecal streptococci and Pseudomonas aeruginosa. The counts of colony forming units from each water sample were used in the analysis. The colony and cell characteristics of isolated contaminant/s were recorded and identified using the Biolog identification system.

Results: The mean for microbial load of tap water in BUA were (log 5.39 ± 0.23 cfu/ml) and cooler (log 5.14 ± 0.42 cfu/ml). Waters in BUA were significantly higher than the population load contained in waters from the main building (p<0.05). The microbial load of water from the tap and coolers in the MB were recorded at (log 4.63 ± 0.18 cfu/ml) and (log 4.07 ± 0.29 cfu/ml), respectively. These numbers were greatly reduced to cooler once it reached the filtration system. Fecal coliforms, fecal streptococci and Pseudomonas aeruginosa were negative in all the water samples. E. coli was however, isolated from the water collected from a tap in the clinical building.

Conclusions: The quality of drinking water from coolers and taps in the Faculty of Dentistry complied with the standard for microbial quality of water and is thus, safe for human consumption.

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Tooth Enamel Changes after Power Bleaching and Comparison between different Application Times
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Purpose: To investigate safety concerns with bleaching procedures by studying the effects of 35% hydrogen peroxide (HP) power bleaching on the enamel surface roughness, enamel elements composition and color changes.

Materials and Methods: Sound human premolars were embedded in epoxy resin and sectioned into halves. Part 1: Specimens were taped to expose 2 x 2mm wide window of enamel and analyzed preoperatively under Scanning Electron Microscope and Stereomicroscope. Groups of specimens were treated as follows: Group 1: bleached with 1 application of 35% HP and cured for 3 cycles. Group 2: were subjected to 3 applications of same bleaching agents and cured for 3 cycles. The specimens were analyzed for enamel surface roughness, depth of demineralization, and enamel elements changes. Part 2: Shade color of specimens were determined pre-operatively by using Vitapan 3D Master. The specimens were divided equally into 2 groups of 10 and bleached with different treatment modalities as in part 1. Postoperative tooth shade color was determined.

Results: Surface roughness: SEM showed little or no alteration in the enamel surface for both treatment modalities. Bleached enamel showed increase in staining susceptibility (median before= grade 1, median after= grade 3). Depth of enamel demineralization: SEM showed minor increase in depth of enamel porosity for both treatment modalities. Significant penetration of methylene blue dye into the enamel porosity was found. The difference between the two treatments was not statistically significant. Enamel elements analysis: no significance differences of Calcium and Oxygen were found and no significant difference between the two treatment modalities. Color changes: Significant increase in brightness of tooth color, but no significant differences between the two treatment modalities.

Conclusion: Bleaching with 35% hydrogen peroxide produced desirable whitening effects with mild or little deleterious effects on enamel. However bleached enamel surfaces are more susceptible to stains than unbleached enamel.