

USE OF COMMERCIAL SODIUM HYPOCHLORITE SOLUTIONS IN RESPECT TO THE QUALITY OF THE PRODUCTS

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Sodium hypochlorite is the most popular solution for root canal irrigation in stomatology practice. NaOCl ionizes in water into hypochlorite ion OCl⁻, establishing an equilibrium with hypochlorous acid (HOCl). At acidic and neutral pH, chlorine exists predominantly as HOCl, whereas at high pH of 9 and above, OCl⁻ predominates. Hypochlorous acid is responsible for the antibacterial activity. As the strong oxidant it is effective disinfectant which disrupts several vital functions of the microbial cell, resulting in cell death. In concentrations between 0.5% and 6% it is a potent antimicrobial agent, killing most bacteria instantly on direct contact.

The aim of this study was to investigate the possibility of using some bleach solutions for root canal irrigation. Because of its low price, bleach is widely used in Macedonia. Alkaloid AD Skopje produces 10% and 20% Sodium hypochlorite disinfectant solution that is used in the food industry. The Varakina bleach which is a solvent of sodium hypochlorite with a scent of lemon is used for whitening laundry and bed linen. The samples of commercial solutions were taken from the market and tested on the presence and concentration of heavy metals as impurities.

The atomic absorption spectrophotometry (AAS) is used for determination of heavy metals in tested solutions.

Results were compared to the German code standard which allows not more than 20 ppm of heavy metals in hypochlorite solutions used for irrigation.

The obtained results showed that the concentrations of heavy metals in the tested samples were below maximum allowed concentrations for the tap water.

It can be concluded that commercial solutions can be used for root canal irrigation but only after checking the quality of the product on the content of heavy metals as

impurities. It is recommended to use purified water to obtain desired dilution. However, it is always safer to use products specially designed for stomatology use than commercial sodium hypochlorite products for other purposes.

Keywords: hypochlorite solutions, root canal irrigation