

Influence of salts of singly and doubly charged metal cations on the sorption of H^+ and OH^- ions on the mycelium of basidiomycetes

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Abstract

Teeth whitening is a cosmetic operation conducted for aesthetic reasons, and has no medical indications. In spite of this, the procedures for bleaching with hydrogen peroxide or its use are widely used in dental clinics. Home whitening is also developed. As a result, oxidant molecules penetrate the inside of the tooth and oxidize the coloring impurities. Depending on the conditions of the procedure and their quantity, can achieve the desired aesthetic effect. Bleached teeth after a while can again change their color, and require a repeat bleaching. Doctors do not recommend repeating more often than twice a year. However, the procedures performed often give complications. Most often there is a hypersensitivity of teeth, which manifests itself in a reaction to many stimuli. So does the thinning of the tooth enamel and reducing its microhardness characteristics that can be measured with instruments. The mechanism of these processes has not been fully elucidated. Hydrogen peroxide and its products, which do not interact chemically with the mineral constituent of the teeth, but can easily be adsorbed on the enamel apatite. The organic component, consisting mainly of proteins, undergoes a strong enough effect. Proteins are not stable in an alkaline medium and in highly alkaline media can be hydrolyzed *via* a peptide bond. Hydrogen peroxide subjects proteins to oxidation and degradation, the degree of which increases with increasing oxidant concentration, exposure time and temperature, and especially with increasing pH. In an alkaline environment, oxidation products and degradation dissolve, which leads to the denudation of enamel prisms, the destruction of mineralization and is the reason for the sensitivity of the teeth.

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