

## THE INFLUENCE OF DIFFERENT AGITATION TECHNIQUES ON THE RESULTS OF TEETH DEMINERALIZATION BY ALKALINE SOLUTION OF EDTA

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In order to analyze biomineralized microscopic structures on the microscopic level, they must be previously subjected to histological in vitro demineralization process, which removes the inorganic component. The speed of demineralization and the influence on the preservation of tissue morphology are the two most important parameters for the choice of decalcifying solution. The solution of Na<sub>2</sub>-EDTA (ethylenediaminetetraacetic acid - disodium salt), made in different concentrations, is considered to be the slowest, but also the most reliable in means of demineralization. The aim of the study was to investigate the possible acceleration of tooth samples demineralization with alkalized solution of Na<sub>2</sub>-EDTA, using different conditions of agitation, as well as periodic renewal of the solution for demineralization. Twelve wisdom teeth were used for the purposes of research, extracted for orthodontic reasons. The process of demineralization was performed in the 18.6% aqueous solution of Na<sub>2</sub>-EDTA. During 45 days, the decline of the specimen's weight was measured for three physical conditions: the irradiation of the tooth halves samples in the demineralizing agent with the microwaves was used as an agitating technique, 24-hour stirring of the demineralizing agent with the tooth samples on the magnetic stirrer was applied, and the demineralization of the material on the room temperature. Each of these conditions was further subdivided into two groups: in one the demineralizing agent was constant during 45 days of the experiment, and in the second the demineralizing agent was replaced by the same volume of new solution every three days. Demineralized samples were routinely processed to microscopic slides, stained with hematoxylin and eosin. The preservation of dental structures up to cytological details of different cell types in dental pulp was evidenced on microscopic slides. Demineralization of teeth with alkalized solution of Na<sub>2</sub>-EDTA runs independently of examined types of agitation and/or renewal of chelating solution. It is possible to make a significant laboratory rationalization for in vitro tissue demineralization by excluding physical agitation, and frequent renewal of demineralizing solution. *Acta Medica Medianae* 2015;54(4):24-31.