

IN VIVO TOXICITY EVALUATION OF *Psidium guajava* L. ELECTROLYTE USED IN THE ANODIZING OF TITANIUM IMPLANTS

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INTRODUCTION: Anodizing is a process used to modify the surface of a metal through an electrolyte (acid) and the application of a current density. This process provides greater biocompatibility of titanium dental implants. However, this practice results in toxic effluents to the environment and therefore, the search for less aggressive alternatives, such as vegetable electrolytes, may be a viable option. The species *Psidium guajava* L. (guava tree) has properties in its leaves capable of forming the oxide layer on the surface of titanium; however, data on its toxicity are still unknown. **OBJECTIVE:** Evaluate the toxicity in microcrustacean *Daphnia magna* of the aqueous electrolyte from *Psidium guajava* L. leaves collected in different periods (winter and summer) before and after the anodizing process. **MATERIAL AND METHODS:** The leaves were collected from one Guava tree located in a rural area of Nova Petrópolis during 2023/2024. Microcrustaceans (n = 20 per group) were used to evaluate the lethality of the electrolyte before and after anodization at different concentrations (0.01–10%) during a 48-hour exposure. A control group was maintained in a species-specific medium. At the end of the experiment, immobile individuals were counted to calculate the EC₅₀. **RESULTS AND CONCLUSION:** For the collection performed in winter, the assay resulted in an EC₅₀ of 0.7% for the electrolyte before anodization and 3.0% in the sample after anodization. While for the collection carried out in the summer (period in which the fruit is collected), the EC₅₀ was 0.72% before anodization and 3% after anodization. The results observed between the different periods showed higher effective concentrations in the electrolytes after anodization, a fact that may be associated with the current density that is applied in the anodization process, where molecules are modified to form the oxide layer and that makes the organisms more tolerant to the electrolyte after anodization. The present study shows that the electrolyte that undergoes the anodization process presented better effective concentrations in relation to the electrolyte without anodization. However, new studies evaluating the phytochemical characterization of these electrolytes are necessary, to better understand which molecules are consumed in the process.

Keywords: *Daphnia magna*; Ecotoxicology; Guava leaves.