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PROTECTIVE EFFECT OF *Campomanesia reitziana* ON CALCIUM OXALATE CRYSTAL FORMATION

Luciane Gobbo Brandão[1]*, Anelize Dada[1], Rita de Cássia Melo Vilhena de Andrade Fonseca da Silva[1], Valdir Cechinel Filho[1], Priscila de Souza[1].

[1]*Universidade do Vale do Itajaí, Brasil. lugobbo@univali.br.*

INTRODUCTION

Nephrolithiasis, characterized by the formation of kidney stones, is influenced by dietary, metabolic, and genetic factors. Therapy is a challenge, making the search for new remedies essential. Natural compounds, such as those found in *Campomanesia reitziana*, are studied for their antioxidant and anti-inflammatory properties. This study investigated the potential of this species in modulating crystallization, aggregation, and crystal growth in the urine of normotensive rats.

MATERIAL AND METHODS

For urine collection, a group of six normotensive Wistar rats (NTR) was used. The animals were fasted for 8 hours and received a 0.9% sodium chloride solution load (5 mL/100 g), administered in four doses at 15-minute intervals. They were then placed in metabolic cages. Urine was collected for 8 hours. After urine collection, *Campomanesia reitziana* treatment was added to 500 µL of urine at concentrations of 0.01 – 0.3 mg/mL. Additionally, 80 µL of 0.1 M sodium oxalate was added to the urine samples to induce CaOx precipitation. The samples were kept at 37°C for 60 minutes and analyzed in a Neubauer chamber in four randomly selected fields. The crystal morphology was classified as calcium oxalate monohydrate crystals and calcium oxalate dihydrate crystals. Photos of each dilution were taken, and the crystal counts were recorded in Prism software for graph preparation.

RESULTS

Analyzing the results, it is possible to observe that *Campomanesia reitziana* extract significantly reduced the total formation of CaOx crystals at all concentrations compared to the vehicle. When analyzed separately, the protective effect was maintained at all concentrations for monohydrate crystal formation. However, for dihydrate crystal formation, the effective concentration was 0.1 mg/mL. Therefore, 0.1 mg/mL was the most effective concentration in reducing the total CaOx crystals.

CONCLUSIONS

The results indicate that *Campomanesia reitziana* has a significant protective effect in reducing CaOx crystal formation, especially at the concentration of 0.1 mg/mL, which proved to be the most effective in decreasing total crystals. This finding suggests the potential use of this plant in preventing urinary crystallization. However, further studies are needed to confirm the potential of this species in in vivo models.

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