

Spondias mombin L. decoction utilization as antiseptic in cats submitted to castration

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Abstract

Statement of the Problem: Phytotherapeutic medicinal products are pharmaceutical preparations (syrup, elixir, dye, fluid and dry extracts, ointments, cream, gel, pills, and capsules) characterized by a wide knowledge of their effectiveness, risks of their use and constancy of their quality to treat various diseases. The use of these medicinal natural origin products has emerged as an alternative and is mainly due to the great search for phytotherapeutic remedies, linked to socioeconomic factors, maintenance of cultural traditions, availability to the population and the search for drugs with fewer side effects. In addition, it is also due to the inefficiency of some synthetic products and the high cost of allopathic medicines. High bacterial resistance to antimicrobials concerns professionals in many areas, as it is a problem that affects the entire population, increases treatments costs, and causes a higher number of infection mortality, which becomes a challenge for clinical handling. In studies on healing activity and antimicrobial activity using medicinal plants, most authors suggest that tannins are responsible for the pharmacological action, because of their astringent property. Surgical sterilization consists of the removal of male or female gonads, called orchietomy and ovariosalpingohysterectomy, respectively. These are among the most common surgeries in small animal clinics, since they are simple surgeries, affordable and quick.. This study aimed to evaluate efficiency of decoction based on mombin leaves (*Spondias mombin* L.) in vitro and in vivo as an antiseptic in the post-surgery period of cats submitted to orchietomy and ovariosalpingohysterectomy. Methodology & Theoretical Orientation: 45 non-defined breed cats (*Felis catus*) were randomly selected, their owners received information about the experiment and signed the consent form allowing the surgery. These animals were subsequently anesthetized and submitted to ovariosalpingohysterectomy in females and orchietomy in males. Post-surgical follow-up occurred in sanitized cats for a period of seven days, reinforcing that the animals received daily ration and water ad libitum. This research was evaluated by the Committee on Ethics and Use of

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Animals (CEUA) of UFERSA, with consent no. 20/2018. The sample was divided into three randomized groups, comprising 15 animals each. The first group served as positive control (chlorhexidine-alcohol solution 0.5%), the second, negative control (sterile distilled water), and the third, the test group with mombin leaves decoction 100 mg/mL. The animals were treated daily for seven days, with disinfection and collection of the samples performed daily at the surgical incision spot with the aid of sterile swab after 10 min of the antiseptic action. Swab samples were collected in a tube containing 2 mL of sterile distilled water, and subjected to the dilutions 10^1 , 10^2 and 10^3 , respectively. After the procedure, 1 mL of each dilution was seeded in plate count agar and incubated in a bacteriological oven for 24 h at a temperature range of 37 °C to 37.5 °C, the necessary time for bacterial counting

by mesophilic present in each dilution. After isolating bacteria, they were cultured in BHI broth for 24 h at 37 °C to 37.5 °C until the log phase for approximately 18-24 h, adjusted by the McFarland scale. Microorganisms were identified by cytology and biochemical tests. The standard inoculum of each microorganism was cultured for diffusion testing in Mueller-Hinton agar at the concentration of 0.5 of the McFarland scale for 18-24 h. The sensitivity test to extracts by agar diffusion was performed according to antimicrobial sensitivity test for diffusion-disc. Microbiological analyses results were submitted to the analysis of variance and the means were compared to each other by the Scott-Knott test, at the 5% probability level, using statistical software Sisvar. Findings: All animals, independent of age and sex, had visible healing at a similar time. animals treated with sterile distilled water had the highest number of microorganisms found, since water has no ability to inhibit bacteria. However, animals treated with Spondias Mombin L. presented a significant reduction of bacterial growth. Results with chlorhexidine at 0.5% were better than the negative control (sterile distilled water), since this antiseptic is characterized by being a cationic detergent of the biguanides class available in acetate, hydrochloride and digluconate forms. This last one is the most commonly used salt in formulas and products, which has a wide spectrum of action, acting on gram-positive, gram-negative bacteria, fungi, yeasts, and lipophilic viruses. Animals treated with mombin leaves decoction presented a significant reduction of bacterial growth. In addition, the animals treated in the test group had better surgical wound healing. Better healing of the surgical wounds of those treated with Spondia mombin L. was observed, with reporting that the healing activity can be attributed to tannins, stimulation of phagocytic cells, as well as anti-infective activities. the bacteria found in the surgical wounds of cats treated with the negative control, *Staphylococcus aureus*, *Staphylococcus hycus*, *Staphylococcus coagulase-negative*, *Corynebacterium* sp. and Gram-positive bacilli strains, all bacterial strains isolated from the negative control were tested in vitro and presented inhibition halos for 0.5% chlorhexidine and for the decoction of the mombin leaves. The clinical feature of the animals under study, we observed that the animals submitted to care with the decoction of Spondia mombin L., distilled water and chlorhexidine did not present significant differences regarding hyperemia, edema, secretion, crusting, and dehiscence, with the exception of the presence of secretion in 20% (3 females) of the negative control Conclusion &

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Significance: The decoction of *Spondias mombin* L. leaves proved antiseptic efficacy in the surgical wounds of cats submitted to orchiectomy and ovariosalpingohysterectomy.

Biography

Francisco Marlon Carneiro Feijó has his Veterinary and PhD in Biotechnology. He is professor at the Federal Rural University of the Semi-Arid. He has experience in microbiology, working mainly on the following topics: Identification and action of plant extracts such as *Spondia mombim* and *Eucalyptus* spp. on bacteria and yeasts of veterinary and environmental medical interest.

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