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Letter to the Editor

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Re: Development of unconventional treatments for mastitis in dairy cattle

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To the editor: We read the article entitled "Development of unconventional treatments for mastitis in dairy cattle" with great interest.

Bovine mastitis is an inflammatory reaction of the udder tissue in the mammary gland initiated due to physical trauma or microorganism infections. As a direct effect of mastitis, there are significant economic losses due to decreased milk production and quality. It can also cause devastating effects on the finances of ruminant farms (Ashraf and Imran, 2018). This paper aimed to develop and evaluate a new therapeutic approach to treat subclinical bovine mastitis without antibiotics, as the authors wrote: "antibiotic-free", with plant extracts. We congratulate the authors for this original and innovative article, and make some comments concerning our knowledge about mastitis and the therapeutic evaluation of natural extracts in animal models. First, we must clarify that the most common route of drug administration for bovine mastitis is not "intrauterine antibiotic infusion", as the authors wrote, but is the intra-mammary application of antibiotics and non-steroid anti-inflammatory drugs.

Depending on the clinical circumstances and the type of medication, subcutaneous, intramuscular, and intravenous routes of administration may be chosen. We agree with the authors that antibiotic administration is associated with antibiotics resistance, and from plants many compounds with antibiotic and therapeutic properties can be extracted and used to treat mastitis and other diseases.

To achieve their aims, these authors used "cows of the black-and-white breed" with a clear positive test reaction and rabbits. However, the authors should indicate the cows' breed. We suppose that were used Holstein Friesian, and should specify which test was used to include the animals in this study. The authors used: "raw materials from local plants obtained from wormwood, chamomile, and willow bark".

In the studies performed by our team, conducted to evaluate the effects of different extracts in several animal models of disease, we usually ask for the support of a phytologist to properly characterize the plants, and the plants are usually kept to prove that they are indeed those plants. We also always mention the Latin name of the plants so that other researchers can conduct studies with them and indicate the coordinates where the plants are collected (Ferreira *et al*., 2021; Ribeiro-Silva *et al*., 2022).

The authors prepared an alcoholic extract with the dried plants, in this case, a tincture. However, they should have studied the extract's stability to understand if the alcoholic extract retains therapeutic properties and for how long. According to the authors' results, were done acute and chronic tests with rabbits to evaluate the safety of the extracts, but is not clear the sex, the strain or age of the rabbits used to do these studies, as well as the ethical approval to perfom these tests in rabbits.

After administration of this extract to cows, the researchers observed that the subclinical mastitis reversed and the milk characteristics were unchanged. But needs to be clarified what clinical parameters were improved with this treatment. Furthermore, the substances present in this extract with antibacterial properties are unknown. It would also be essential to identify the microbial agents presented in the milk and to conduct *in vitro* studies with the milk samples to determine if the extract has antibacterial properties.

The therapeutic efficacy of the extrat is not easy to understand because extract's administration route is not explained.

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Conclusion

In conclusion, the studies conducted with this extract do not prove that it is in fact, a good alternative for treating mastitis in cattle.

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