



Category: Miscellaneous

Evaluation of a topical herbal drug for its *in-vivo* immunological effect on cytokines production and antibacterial activity in bovine subclinical mastitis

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Abstract

Mastitis is an inflammatory disorder caused by microorganisms. Currently antibiotics have been mainstay of mastitis therapy. However, their use is associated with cost issue and human health concern. Some herbs exert beneficial effects on bacterial pathogens through immunomodulation by influencing cytokine production. To assess the effect of herbs on cytokine profile, total bacterial load and somatic cell count in two breeds of cattle harboring subclinical mastitis. The response to treatment was evaluated by enumerating somatic cell count, total bacterial load and studying the expression of different cytokines (IL-6, IL-8, IL-12, IFN- γ and TNF- α). The expression profiles were carried out using real time PCR, by collecting milk on days 0 as well as 5 and 21 post last treatment and data were analyzed using Statistical analysis system software. Pre and post-treatment SCC in mastitic quarters statistically did not differ significantly, however, total bacterial load declined significantly from day 0 onwards in both the breeds. Highly significant differences ($P < 0.01$) were observed in all the cytokines on day 0, 5, and 21 post last treatments in both the breeds. The comparison between crossbred and Gir cattle revealed a significant difference in expression of IL-6 and TNF- α . However, other cytokines exhibited a similar pattern of expression in both breeds, which was non-significant. The topical herbal drug exhibited antibacterial and immunomodulatory activities and thus the work supports its use as an alternative to antibiotics against subclinical udder infection in bovines.

Citation: Kher, M., Bhatt, V., Sheth, N., Kunjadia, A., Nauriyal, D. and Joshi, C. Evaluation of a topical herbal drug for its *in-vivo* immunological effect on cytokines production and antibacterial activity in bovine subclinical mastitis [Abstract]. In: Abstracts of the NGBT conference; Oct 02-04, 2017; Bhubaneswar, Odisha, India: Can J biotech, Volume 1, Special Issue, Page 151. <https://doi.org/10.24870/cjb.2017-a137>