

Assessment of Mammary Gland Immunity and Therapeutic Potential of Topical Herbal Gel against Bovine Subclinical Mastitis

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Abstract : In-vivo immunotherapeutic potential on cytokines production and antibacterial activity of a topical herbal gel was evaluated in two breeds of cattle in bovine subclinical mastitis. The response to treatment was evaluated by enumerating somatic cell count (SCC), determining total bacterial count and studying the expression of different cytokines like (interleukin 6, 8, 12, GMCSF, interferon- γ and TNF- α). The pre- and post-treatment SCC in mastitic quarters did not differ statistically-significantly. However, total bacterial count declined significantly from day 0 onwards in both the breeds. Significant differences ($P < 0.01$) were observed in all types of cytokines production on day 0, 5, and 21 post last treatments in both the breeds. The comparison of cytokine expression profiles between crossbred and Gir cattle affirmed a significant difference in expression of IL-6 and TNF- α . The topical herbal gel showed immunomodulatory and antimicrobial activities in subclinical mastitis, and therefore the work supports its use as substitute herbal therapy against subclinical mastitis in bovines.

Keywords : antibacterial activity, immunomodulation, herbal gel, subclinical mastitis

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