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INVESTIGATION ON THE IN VITRO EFFECTS OF BORAGE ON CHEMILUMIN ESCENCE OF BOVINE NEUTROPHILS

Asadollahi, Firoozeh[1,*], Mehrzad, Jalil[1], Chaichi, Mohammad Javad[2]
Taghavi Razavi Zadeh, Alireza[3]

[1]Department of Pathobiology, Sections Immunology, Faculty of Veterinary Medicine, and Institute of Biotechnology, Ferdowsi University of Mashhad, Mashhad, Iran
[2]Faculty of Chemistry, Mazandaran University, Babolsar 4741695447, Iran
[3]Department of Clinical Sciences, Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran

To determine the immunomodulatory effect of borage in animal model, we investigated on neutrophils (PMNs) functions of dairy cows. Borage is a medicinal plant which is used alot in traditional medicine and its therapeutic properties have been prooven borage as very useful medicinal plant. But its immunomodulatory effects have rarely been studied. In this in vitro study, blood samples were taken from 8 healthy dairy cows and were isolated by hypotonic lysis technique. Isolated blood PMNs of healthy cows were exposed to borage extract for 12 hours in the sterile condition with a standard cell culture method, and then stimulated with soluble (phorbol-merystate acetate, PMA) and particle (Latex beads and Pansorbin®) stimuli. The neutrophils capacity for reactive oxygen species (ROS) production and phagocytosis were examined with luminometery techniques, mainly chemilumencence (CL) assay [1-3]. Results of CL assay showed great enhancement of area under the curve (AUC) for treated group with borage extract, strongly revealing the increase in ROS production against stimulators. Also in comparison to control groups Tmax in borage treated groups were much higher; this shows 1) increased intracellular CL and 2) increase the phagocytosis activity of PMNs in treated group. Our results strongly support the immunomodulatory effects of borage in farm animals. So, we suggest that there should be more examination on the borage extract to find the main functional substance for immunoprophylaxis and therapeutic porposes in highy yieling dairy cows.

References

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