STUDIES ON THE BLASTOGENIC RESPONSES OF LYMPHOCYTES TO FOUR KINDS OF MITOGENS IN THE CANINE, BOVINE AND EQUINE

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The present study was designed to investigate blastogenic responses of canine, bovine and equine lymphocytes to four kind of mitogens, peanut agglutinin (PNA), lentil lectin (LcA), streptolysin-O (SLO) and wistaria floribunda (WF), which are known to have mitogenic activity in human and laboratory animals. The optimal culture conditions for inducing lymphocyte blastogenic responses to these mitogens were examined. The identification of lymphocyte subpopulations stimulated with these mitogens was also carried out by a flowcytometry technique. The optimal concentration of PNA could not be determined. In the canine and bovine lymphocytes, there was a dose-response reaction in the PNA-induced stimulation index (SI). In the equine lymphocytes, the SI was maximal at the PNA concentration of 1,500 μg/ml, but it was not significantly higher than the resting SI value. The optimal culture periods and cell populations were, therefore, not tested. LcA induced the maximum blastogenic response among these 4 mitogens. The optimal culture conditions in the canine were at an LcA concentration of 100 μg/ml, with a culture period of 72hrs and cell population of 2×10^6/ml. In the bovine, these values were 10 μg/ml, 96hrs, and 8 $\times10^6$/ml, respectively. In the equine, these values were 7.5 μg/ml, 72hrs, and 4×10^6/ml, respectively. SLO did not induce blastgenic responses in the bovine and the equine. In the canine, the optimal culture conditions using SLO were at a concentration of 500 units/ml, with a culture period of 120hrs, and a cell count of 2×10^6/ml. The optimal culture concentration using WF was not identifined in the canine. In the bovine and equine, it was at concentration of 500 μg/ml, with a culture period of 72hrs and a cell population of 4×10^6/ml. Under the optimal culture conditions using these 3 mitogens, the SI (mean $\pm$ standard error) in each animals was;

LcA: 38.8 ± 12.1, SLO: 11.9 ± 4.3 in the canine.
LcA: 4.2 ± 9.2, WF: 19.3 ± 7.8 in the bovine.
LcA: 17.3 ± 7.7, WF: 3.8 ± 1.0 in the equine.

The lymphocyte subpopulations stimulated with each of these mitogens could not be determined by the flowcytometry technique.