

## Haemogram in sheep with antibodies against *Oestrus ovis*

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Oestrosis is a parasitic zoonosis caused by the *Oestrus ovis* flies which affects mainly sheep and goats, although humans can also be infested. This myiasis is endemic in some Mediterranean and African countries because of climatic conditions (low rainfall, elevated temperatures) throughout the year favour the development of the *O. ovis* exogen phase. There are few investigations concerning the interactions between *O. ovis* larvae and the host immune system, and there is a lack of data about the pathogenicity of these larvae on the ovine livestock. The main goal in this study was to analyze the haemogram in sheep with antibodies against L2 *O. ovis* excretory/secretory antigens. This investigation was carried out in Galicia (NW Spain), a European region with Atlantic climate where warmer summers occur. Two hundred and seventy (270) blood samples were collected from sheep randomly selected in two different zones at a different height, Coastal (0-100 m) and Interior (> 100 m), during four periods: spring, summer, autumn and winter. By using a Coulter-Counter, the values of erythrocytes, haemoglobin, haematocrite, platelets, lymphocytes, monocytes and granulocytes were obtained.

Antibody values (IgG, IgM and IgA) against L2 *O. ovis* were analysed by an indirect-enzyme-linked immunoassay test (iELISA). For this purpose, heads of naturally infested sheep were obtained in a local slaughterhouse and opened to collect larvae in the septum, the turbinates, the ethmoid and sinusal cavities (Scala *et al.*, 2002, *J Med Entomol*, 39: 652-657). The excretory/secretory antigens (L2OES) were obtained by incubating L2 larvae in RPMI culture medium at room temperature for 3 days, collecting and replacing this medium every 3 hours (Suárez *et al.*, 2005, *Vet Parasitol*, 134: 153-158).

Thirty percent of the sheep had positive IgM values against L2OES. Significant reduction was observed in the levels of platelets, monocytes and granulocytes in respect to the IgM-negative sheep, whereas an increment in the lymphocyte values was recorded in the IgM-positive ones.

The percentage of IgG-positive sheep was 68.8%. No significant variations in the red cells were observed. A significant reduction in the lymphocyte levels of the IgG-positive animals was recorded, but the values of monocytes and granulocytes showed a statistical increment.

Fifty percent of the sheep were positive to the detection of IgA against L2OES. The values of red and white cells were similar and significant differences between IgA-positive and IgA-negative sheep were not recorded. These results seem to indicate that in IgM-positive sheep, the presence of L1 is responsible for a lymphoproliferation reaction in the sheep, and that reduction on the levels of monocytes and granulocytes might be due to the appearance of granuloma in the upper airways mucosae. In the IgG-positive sheep, L2 and L3 larvae released elevated concentrations of antigen, stimulating the production of monocytes and granulocytes. Reduction on lymphocytes could be attributable to their increment in the upper respiratory tract (Jacquiet *et al.*, 2005, *Vet Immunol Immunopathol*, 105: 95-103).