

to play an important role in parasite susceptibility in Somali Sheep leading to chronic infectious diseases. FUNCAP, CNPq and Embrapa Caprinos e Ovinos.

the McMaster techniques. Prevalence of gastrointestinal nematodes was 25-98 %, however, the infection intensity was typically low to moderate on the most of the farms. None of the farms was negative for nematodes on faecal exam. Parasitological findings on 10 farms were lower than egg number 150/ 1gr of faeces in most of sheep in a group.

Even if the prevalence ranged from 25 to 98 %, infection intensity on majority of farms was low to moderate. Clinical signs were very usually latent.

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Immunology / Vaccines

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PO3.30

Cytokines Mrna Levels in Brazilian Somali Sheep Resistant and Susceptible to *Haemonchus* spp. Infection

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Cytokines are known to play a central role in immune mechanisms involved in defense against gastrointestinal nematode infections. The present study used Real-time RT-PCR to quantify cytokines (IL-4, IL-13, TNF-alpha and IFN-gamma) in two groups of Brazilian Somali sheep: one resistant and other susceptible to *Haemonchus* spp. infection. From a Somali sheep herd, 75 young animals were kept together on pasture without anthelmintic treatment for 4 months. Based on mean fecal egg counts, the eight most resistant and the eight most susceptible animals were slaughtered for parasite recovery and collection of abomasum tissue samples. Real-time RT-PCR was performed using the LightCycler PCR and SYBR Green I dye. RPL-0 (ribosomal protein L-0) was used for normalization and the relative quantification of genes was calculated by REST software. Resistant animals had 9 fold less *Haemonchus* spp. than susceptible ($P < 0.05$). TNF-alpha and IFN-gamma were both up-regulated in susceptible animals ($P < 0.03$). The other two genes analyzed had the same expression pattern in both groups ($P > 0.05$). Higher TNF-alpha can be associated with both TH1 and TH2 response. However, higher IFN-gamma and lack of IL-4 and IL-13 levels indicates a TH1 response in susceptible animals. TH1 cytokines appear

PO3.31

Implication of Hydatid Antigens on Cytokines and NO Production in Human hydatidosis

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Human echinococcosis is caused by infection with the larval stage of the cestode *Echinococcus granulosus*. It constitutes a serious public health problem in various parts of the world, particularly in Algeria. It seems that the variability and severity of the clinical expression of this parasitosis are related to the variety of human immunological responses to the parasite antigens. The study of these antigens with their multiple immunological effects will be useful in designing strategies to develop early immunodiagnosis of hydatid disease. It could also open new perspectives in the understanding of the pathogenesis of this disease. The aim of our work is to study the immunological response associated with human hydatidosis by evaluating the effect of hydatid antigens on cytokines and NO production. We investigated IL-12, IL-8, IFN- γ and NO production by mononuclear cells of hydatid patients stimulated with antigens of hydatid cyst (cystic fluid, purified fractions, extracts of protoscoleces, laminated layer and germinal layer). Our results show that all hydatid antigens, excepted laminated layer extract, increase cytokine and NO production in vitro. Our findings underline a strong host-parasite interaction. All these findings have important implications in the diagnosis of human hydatidosis. Moreover, this study highlights the role of parasite laminated layer in regulating the host immune responses against *Echinococcus granulosus*. Inhibition of these mechanisms seems to be an important issue to address during the design of anti-hydatid treatment.

PO3.32

Immunological Aspects of Heterophyidae Infection in Laboratory Animals

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Heterophyiasis is an important food-borne parasitic zoonosis in Egypt, among inhabitants living around brackish-water lakes especially fisher men and it is a common human parasite in Nile Delta