

## **Effects of resveratrol on shedding and pathological dynamics in experimental *B. melitensis* infection in dexamethasone-treated nonpregnant Boer goats**

### **ABSTRACT**

Brucellosis constitutes an infectious re-emerging zoonosis. Spread of diseases could be exacerbated by stress-induced immunosuppression. This study evaluated relationship between *Brucella melitensis* infection, shedding dynamics, dexamethasone-induced stress, pathological alterations and resveratrol ameliorative effects in goats. Twelve nonpregnant goats were divided into four groups A, B, C, and D of three animals each. Groups A and B were administered 10<sup>7</sup> CFU/mL of *B. melitensis* ocularly, 21 days prior to 7 days consecutive administration of dexamethasone (2 mg/kg). Group A was further administered resveratrol (5 mg/kg) intravenously for 5 consecutive days from day 31 post *B. melitensis* inoculation. Group C was administered similar dose of *B. melitensis* while group D was inoculated normal saline. Blood, nasal, ocular, and vaginal swabs were collected at intervals for analysis. The does were sacrificed at day 42 post inoculation (pi). Tissues were collected for tissue bacterial load determination, histopathology, and immunohistochemistry. Dexamethasone administration from day 21 pi increased the frequency in the shedding dynamics, tissue bacterial load, pathological alterations (frequency of microgranuloma and intensity of immunostaining) in group B while 5 days treatment with resveratrol following dexamethasone administration significantly reduced tissue bacterial load, decline in shedding dynamics, and ameliorate damage by dexamethasone administration/*B. melitensis* infection.

**Keyword:** Dexamethasone-induced stress; Immunohistochemistry; Pathological alteration; Shedding dynamics