

## **Clinical responses and reproductive pathological changes associated with *Brucella melitensis* and its lipopolysaccharides in female mice**

### **ABSTRACT**

Brucellosis is a bacterial disease caused by the genus *Brucella*, in small ruminants it is caused by *Brucella melitensis* and is a Gram negative, facultative intracellular coccobacillus bacterium. It is characterized by significant reproductive problems and lead to massive economical loses. Hence, this study is designed to observed clinical responses and pathological changes in reproductive organs in female mice via intraperitoneal inoculation. Twenty four healthy female mice were divided into three groups. The treatment groups were inoculated with 1.0 mL of 10<sup>9</sup> wild type *Brucella melitensis* and 1.0 mL of 10<sup>9</sup> *Brucella* LPS intraperitoneally while; the control group was inoculated intraperitoneally with 1.0 mL of sterile phosphate buffer. The mice were observed for clinical signs for 10 days of post inoculation. Female reproductive organs were collected after 10 days for histopathological study. Mice in the *Brucella* group developed severe clinical signs compared to mice infected with LPS. The clinical signs observed were ruffled fur, movement, responsiveness and eye conditions. The pathological changes in the reproductive organs were moderate to severe in the *Brucella* group in relation to inflammatory cells, mild to moderate necrosis, degeneration; congestion and hemorrhage were also observed. The most affected reproductive organ post inoculation with the wild type *Brucella* was the ovary especially in relation to the infiltration of inflammatory cells and congestion/hemorrhage. LPS group developed similar lesions with the *Brucella* group except that the LPS group developed normal to mild necrosis and degeneration. The ovary of the mice infected with LPS developed moderate to severe lesions of inflammation with congestion/hemorrhage but lesser necrosis. In general, the oviducts were moderately inflamed with mild congestion. Some part of the oviduct also showed necrotic and degenerated lesions. Besides that, the vulva of mice in LPS group developed more necrotic lesions compared to the *Brucella* group. This finding suggests that, *Brucella* immunogen (LPS) is a good candidate for the development of Brucellosis vaccine.

**Keyword:** *B. melitensis*; Clinical response; Female mice; Intraperitoneal inoculation; Pathological changes; Reproductive organs