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Session: Animal Models, Pathogenesis and Host Defenses

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Room: Ballroom

Effect of crude methanolic extract of *Anogeissus leiocarpus* on the liver function of *P. berghei* infected miceO.M. Akanbi^{1,*}, A.A. Omonkhua², C.M. Cyril-Olutayo³¹ Adekunle Ajasin University, Akungba-Akoko, Nigeria² University of Benin, Benin, Nigeria³ Obafemi Awolowo University, Ife, Nigeria

Background: Malaria has been a deleterious disease that affects man, especially in the tropics. Some medicinal plants have been found to have antimalarial activities but the appropriate dosage and the pathological effect of these plants on the liver are yet to be studied. This work studied the effect of *Anogeissus leiocarpus* on the liver function of mice infected with *P. berghei*.

Methods & Materials: Mice weighing between 18–25 g were infected with *P. berghei* and distributed into five groups. The first group was not infected with the parasite (normal control). The second group was infected but not treated with antimalarial drug (negative control). The third group was infected and treated with 5.0 mg/kg of artesunate (positive control). The fourth and fifth groups were infected and treated with 100 and 200 mg/kg of methanolic extract of *Anogeissus leiocarpus*.

Results: The serum and liver alanine aminotransferase (ALT) level was significantly higher in the group treated with 200 mg/kg than the normal and positive control ($P < 0.05$). The mean serum and liver aspartate aminotransferase (AST) levels were significantly higher ($P < 0.05$) in the negative control than other groups studied. The total bilirubin level was significantly higher in the negative control and the group treated with 200 mg/kg than the group treated with 100 mg/kg. The serum and liver protein and albumin levels were significantly lower in the negative control when compared with other groups studied.

Conclusion: This study shows reduction in serum and liver ALT, AST, bilirubin, protein and albumin levels in methanolic extract of *A. leiocarpus* treated groups than the negative control group.

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The red-legged partridge as experimental model for the study of emerging flaviviruses in Europe: Application to West Nile and Bagaza (synonymous: Israel turkey meningoencephalitis) virusesM.A. Jimenez-Clavero^{1,*}, F. Llorente¹, E. Perez-Ramirez¹, J. Fernandez-Pinero¹, M. Elizalde¹, N. Nowotny², R. Sorriquer³, J. Figuerola³¹ INIA, Valdeolmos, Spain² University of Veterinary Medicine, Vienna, Austria³ Estación Biológica de Doñana-CSIC, Seville, Spain

Background: In Europe, mosquito-borne flaviviruses, once considered rare and exotic, are getting more common, as best exemplified by the reemergence of West Nile virus (WNV) in the late 1990's and its recent spread, leading currently to an unprecedented situation with 800–900 human cases per year involving up to 17 European (and neighboring) countries.

The emergence of other mosquito-borne flaviviruses with zoonotic potential, like Usutu (USUV) and Bagaza (BAGV) (synonymous to ITV: Israel turkey meningoencephalitis) viruses, first detected in Europe in 2001 and 2010, respectively, merit further research to assess their potential impact in animal and public health. These flaviviruses share a common natural life cycle involving mosquitoes as transmission vectors and wild birds as reservoir hosts. To unravel their complex epidemiology it is necessary to perform experimental infections in susceptible wild birds. In this work we have developed an experimental animal model to study the natural infection of these flaviviruses.

Methods & Materials: The model is based on the red-legged partridge (*Alectoris rufa*) an appreciated game bird indigenous to southern Europe that is farmed for hunting purposes, thus easy to obtain and to handle, and shown to be susceptible to WNV disease in a previous work (Sotelo et al, Vet Res 42(11) 2011). We have used the model to assess the course of infection of three different WNV strains (Italy/2008, Israel'98 and Austria/2008) and one BAGV/ITV strain (Spain/2010).

Results: The red-legged partridge was found highly susceptible to WNV and BAGV/ITV infection, developing clinical signs and mortality to a variable degree, depending upon the strain inoculated. Severe infections were observed after inoculation of red-legged partridges with the WNV lineage 1 strain Italy/2008, with an observed mortality over 55%, while lower (<25%) mortalities were observed for Israel'98 (lineage 1) and Austria/2008 (lineage 2) strains. As for BAGV/ITV strain Spain/2010, all the inoculated red-legged partridges were clinically affected, and of them 30% died. Remarkably, direct (non-vectored) transmission was observed in the case of BAGV/ITV infection.

Conclusion: The Red-legged partridge is a suitable model to study the course of infection of flaviviruses like WNV and BAGV/ITV.

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