Pathogenic *Leptospira* infecting wild and captive crocodiles from the Yucatan Peninsula

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Abstract: *Leptospira* is a worldwide zoonosis that affects a large number of mammals, amphibians, and reptiles such as crocodilians. In this work, samples were collected from American crocodiles (*Crocodylus acutus*; n = 4) captured in Banco Chinchorro Biosphere Reserve, and from captive Morelet's crocodiles (*Crocodylus moreletii*; n = 14) on a farm in Chetumal, Quintana Roo, Mexico. Blood samples were obtained by venipuncture of the post-occipital sinus and serum was separated for subsequent analyses. Each sample was seeded in EMJH medium and observed in darkfield at 250X, and subsequently, DNA extraction was performed. For detection of the genus *Leptospira*, endpoint PCRs based on the 23*S* subunit and on the LipL32 lipoprotein were applied. For the detection of pathogenic species, PCR based on *IS*1500 insertion sequence was applied. Additionally, PCR based on the 16*S* subunit was used to identify if saprophytic *Leptospira* species were carried by the crocodiles. Cultures for isolation were subcultured in EMJH medium and followed up weekly for *Leptospira* isolation. Five crocodiles (5/18= 27.77%) were identified as positive by darkfield observation, and four of them were confirmed to carry DNA from the genus *Leptospira* by PCR, and that they belonged to pathogenic species. No Saprophytic species were identified to be carried by the crocodiles by the 16S PCR. In conclusion, since The DNA of pathogenic species was identified in the peripheral blood of the crocodiles sampled, it is recommended to avoid contact with peridomestic animals that may function as carriers of *Leptospira* capable of infecting the water bodies and soil where the crocodiles remain.

Keywords: *Crocodylus acutus*, *Crocodylus moreletii*, Leptospirosis, Yucatan Peninsula, Zoonosis

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