Effect of incubation temperature on the learning ability of hatchlings Morelet's crocodile (*Crocodylus moreletii*)

Mariana González-Solórzano*[1], Judith A. Rangel-Mendoza[1, 2], Laura T. Hernández-Salazar[1], Edgar A. Bello-Sánchez[1], Iliana T. Cibrián-Llanderal[1], Sergio A. Viveros-Peredo[3,4] and Jorge E. Morales-Mávil[1]

[1]Instituto de Neuroetología, Universidad Veracruzana, Dr. Luis Castelazo s/n, Col. Industrial Ánimas, 91000 Xalapa, Veracruz, México (mgs_1503@hotmail.com, terehernandez@uv.mx, ebello@uv.mx, icibrian@uv.mx, jormoales@uv.mx)

[2] División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Carr. Villahermosa-Cárdenas km.0.5 s/n, Entrq. Bosques de Saloya, 86039 Villahermosa, Tabasco, México (judith.rangel@ujat.mx)

[3]Facultad de Medicina Veterinaria y Zootecnia, Universidad Veracruzana, Miguel Ángel de Quevedo s/n Esq. Yáñez, 91710 Veracruz, Veracruz, México (servivp@gmail.com)

[4]El Colibrí de la Antigua, Unidad de Manejo para la Conservación de la Vida Silvestre "Cacahuatal". La Antigua, Veracruz, México

Abstract: Learning is the process that modifies and causes lasting changes in the behavior of organisms to adapt and make front to the conditions of the environment that surrounds them. In oviparous species, the incubation temperature during embryogenesis may influence the learning ability of individuals and eventually impact their fitness. This study aimed to evaluate the effect of different incubation temperatures on post-hatch learning ability in hatchlings Morelet's crocodile *(Crocodylus moreletii*). We conducted the study at the crocodile farm "El Colibrí" located in La Antigua, Veracruz, Mexico. We artificially incubated 64 fresh eggs randomly at two mean temperatures: 32.3°C and 32.8°C; after hatching, discrimination learning test were performed every three months. We used a three-arm Y-maze with a central decision point with visual cues for reward association placed in two of the arms (only one arm with reward). Each trial consisted of three tasks with three repetitions, switching the visual cue site with the reward. If necessary, hatchlings were stimulated every 30 seconds with a brush to reach the decision point. We evaluated the successful execution rate, the decision latency, and the number of stimuli performed in each group. We found differences in the decision latency and the number of stimuli between treatments. We discussed the effect of different incubation temperatures on post-hatch learning ability in hatchlings Morelet's crocodile from hatch to six months age.

Keywords: Cognition, Neonates, Sensory perception

Type of presentation: Poster

Thematic area: Research and Knowledge (Natural History)