

Maternal effect influence phenotypes variations on eggs and progeny of *Caiman latirostris*

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Abstract: In oviparous animals, mothers can influence offspring phenotypes through resource allocation to eggs. Maternal effects mediated by egg's quality may affect offspring performance, and mothers may adjust egg traits according to environmental influences. We have evaluated influence of climatic variables and body and physiological condition of *Caiman latirostris* reproductive females, and their relationship with eggs chemical characteristics (yolk Fatty Acids, FA), hatching success and hatchling phenotype. Fourteen females were captured defending their nests. We recorded: body (Scaled Mass Index) and physiological conditions (muscle and blood samples). For every nest, one group of eggs was derived for chemical analysis and other for incubation. Precipitation and temperature of March-April (previous reproductive season) and September-October-November-December (prior to the oviposition) were obtained. We found that eggs of female with better body condition, presented higher proportion of C20:4, total polyunsaturated (PUFA) and low 18:2, and were associated with higher hatching success. Low PUFAs percentage in female's muscle were related to better female body condition and offspring's weight, giving indications that these FA were mobilized and invested by the female in the egg. Also, egg's C18:2 content was positively correlated with that of the maternal muscle tissue, which in turn is positively associated to minimum temperatures of September. These temperatures are negatively associated with local rainfall of months in which vitellogenesis occurs, indicating that females would be consuming dietary items that contribute high content of this essential FA. Plasma PUFA's profile was affected by December precipitation probably due to female's consumption of determined prey during different climatic conditions. Therefore, it would be advantageous for maternal investment, years where the local rainfall of the months in which vitellogenesis occurs is abundant because they have access to a greater diversity of prey items, to be able to invest quality resources to their progeny favoring reproductive success.

Keywords: Fatty acids, Female body condition, Maternal investment, Yolk egg.

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