

CAN CROCODILIANS AND VAMPIRE BATS GIVE US LESSONS ABOUT AGING?

Marcelo Hermes-Lima¹, Cecília Carreiro¹, Roberto Andrade Jr.¹, Cássia Polcheira¹, Orlando Furtado-Filho¹, Guilherme Mourão²

¹Depto. Biologia Celular, UnB, Brasília, cep 70910-900. ²Embrapa-Pantanal, Corumbá, cep 79320-900, Brazil.

There is plenty of evidence that natural aging is related to oxidative stress in the animal kingdom. This has been well studied in laboratory animals of limited-grow. The information becomes more limited in infinite-growing animals, including mollusks and lower vertebrates. The information is even more limited when it comes to wild-captured animals. Eating regimen in the wild is seasonal and highly complex, influencing central metabolism and oxidative stress – much different from laboratory conditions. Therefore, how is oxidative stress related to aging in wild-captured animals? We determined markers of oxidative stress (MOS) in several organs of Paraguayan caimans (*Caiman yacare*) – jacarés-do-pantanal. In two expeditions to Pantanal wetlands we captured newborns (3-24 h after hatchling), young-adults (2 year-old males, 2-8 kg body mass – captured in two seasons) and mature-adults (> 10 year-old males, 13-24 kg). MOS were: levels of carbonyl proteins, lipid peroxidation (3 different methods) and oxidized-glutathione. MOS increased from hatchling to young-adult states; none of relevance was seen from young-adults to mature-adults. Caimans grow very fast in the initial developmental stages (up to 2 years). This suggests that augmented metabolic rate is related to increased oxyradical generation and thus oxidative stress of physiological nature. Our second model are wild-captured vampire bats (*Desmodus rotundus*), which ingest huge amounts of heme-iron – a highly pro-oxidant bloody diet. However vampire bats have a life-span of 18 years with no apparent signs of “early aging”. Determination of antioxidant enzymes and MOS in muscle and liver indicated no relevant differences when compared to rats or mice. Vampire secrets are still under way to be unearthed. Support: CNPq-Milênio (Redoxoma).