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CASES OF BUCCAL MYIASIS IN THE BULLFROG *(RANA CATES BEIANA* SHAW, 1802), WITH LARVAE OF *NOTOCHAETA* SP. ALDRICH, 1916 (DIPTERA: SARCOPHAGIDAE) IN SÃO PAULO, BRAZIL

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According to W. E. Duellman & L. Trueb (1986, *Biology of Amphibians*, McGraw-Hill Book Company, New York) Diptera, is the single known group of insects reported in the literature, that lives as parasite of amphibians. With regard to Calliphoridae, according to J. L. Briggs (1975, *J. Parasit., 61:* 412), parasitism of toads and frogs by arthropod larvae is generally limited to flies of the *Bufolucilia* genus. Their eggs are deposited in the nostrils and the lacrymal canal. The larvae reach the bony cavities of the eyes and even the brain, after causing erosion in the mucous membrane. In general they are letal to the host.

Among the sarcophagideans, the genera *Sarcophaga* and *Notochaeta* are known to cause myiasis in amphibians. B. Dasgupta (1962, *Parasitology*, *52:* 53-66) cited J. A. Lestage, 1926, who reports a case of *Sarcophaga ruralis* infesting living toads. Once again, *Sarcophaga* was referred to causing lesions in indian bufonids by P. Roy & B. Dasgupta (1977, *Proc. Indian Acad. Sci., 86:* 207-209). *Notochaeta bufonivora* was described by H. S. Lopes & E. G. Vogelsang (1953, *An. Acad. Bras. Cienc., 25:* 139-143), in the chest of a specimen of *Bufo granulosus* captured in Rancho Grande, Venezuela. It was referred on *Eleutherodactylus* sp. by H. R. Dodge (1968, *Ann. Entomol. Soc. Amer., 61:* 421-450) in Barro Colorado Island, Panama, and on *Proceratophrys* sp. by H. S. Lopes (1981, *Rev. Bras. Biol., 41:* 149-152) in State of Espírito Santo, Brazil. More recently M. L. Crump & J. A. Pounds (1985, *J. Parasitol., 71:* 588-591) and J. A. Pounds & M. L. Crump (1987, *Biotropica, 19:* 306-309), related respectively the finding of the biology of *N. bufonivora* on *Atelopus varius*, caught in the region of Rio Lagarto, Costa Rica.

In May, 1988, we received adult specimens of *Rana catesbeiana* from a commercial frog farm in the town of Jundiai, SP. The animals showed clear signs of weakness, worsened by transportation conditions: inside a small sealed plastic bag. As a consequence, the majority of the animals (6) arrived dead and in an advanced stage of decomposition, while the remaining two frogs in a rather precarious condition, died within two days. Examination of the latter reveleaded the presence of Diptera larvae in the buccal cavity. As a consequence, extensive inflamatory reaction, bleeding and areas of necrosis could be noticed. In certain cases, the larvae caused near obstruction of the higher part of the digestive tract. Total or partial destruction of the tongue and even the perforation of the buccal floor, was the rule. The cavity could be seen from the outside of the gorge (Fig.). In all, 97 larvae were collected: 60 dead ones from the dead animals and 37 from the live remaining amphibians. The latter were taken to containers filled with soil and moist saw dust, 21 pupae having resulted. However, no adult dipterans were obtained. In July of the same year, two more specimens of *R. catesbeiana* were received from a commercial frog farm from Limeira, SP, wich showed similar lesions, caused also by larvae of Diptera. Twenty-one larvae were collected: 12 from one frog, latter treated with sulfazothrin diluted in water and 9 from untreated one specimen. In the first case, there was a complete recovery from the lesions,whilst in the second, the animal died within 6 days. The collected material "in vivo" of the buccal lesions in *R. catesbeiana* was cultivated in simple broth and incubated in 37°C during 18-24 hs. From this culture was made the cultivation in blood agar and Mac-Conkey agar where *Escherichia coli*, *Shigella* sp., *Citrobacter* sp. and *Aeromonas* sp. were isolated. For the research of anaerobic bacteria, the colected material was incubated in Tarozzi

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broth and blood agar and after this in anerobic MacIntosh and Field's system. *Clostridium perfringens* and *Cl. sordelli*, both agents of necrotic processes were isolated and identified according J. C. Glorioso et al. (1974, *Am. J. Vet. Res., 35:* 447-450) and N. R. King & J. G. Holt (1984, *Bergey's Manual of Sistematic Bacteriology*, Williams & Wilkins, Baltimore). They didn't get pupae. Larvae of flies weren't used in animal's feeding. The preliminary identification of larvae based on examination of their spiracle allowed us to suppose they were dipteran belonging to *Calliphoridae* family, however the latter study of the cephalo-pharyngeal skeleton of L_{III}, showed us that they belonged to *Sarcophagidae* family. Their generic identification was possible through Prof. H. S. Lopes collaboration, who analyzed the cephalic skeleton's morphologic characteristics of L_{III}. According to the specialist's conclusion, they were dipterans larvae belonging to the genera *Notochaeta* Aldrich, 1916, but different from the species originated from his studies with E. G. Vogelsang in 1953 (*An. Acad. Bras. Cienc., 25:* 139-143).

It has been impossible to bring the adults together, so we cannot get until now, their specific characterization.

Buccal cavity in specimen of *Rana catesbeiana* with lesion caused by larvae of *Notochaeta* sp., being evident areas of necrosis where the basis of tongue is being destroyed and the buccal floor perforated.