

Evaluation of aerobic oral flora of healthy ball pythons (*Python regius*)

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Introduction

The ball python (*Python regius*) is one of the most common reptiles kept as exotic pets. Pet reptiles can serve as a reservoir of a variety of pathogenic bacteria and are a potential source of multidrug-resistant bacteria transmission¹⁻⁴, representing a serious concern for public health safety^{5,6}. Reptile bacterial diseases are occasionally caused by primary pathogens but are usually the result of an immunocompromising condition that allow overgrowing of commensal bacteria. Thus, in order to correctly interpret the significance of bacterial isolates in ill animals, there is the need to first determine the normal flora. The oral flora of snakes varies between species, geographical region and is influenced by husbandry conditions and feeding practices. Several studies addressed the identification of oral and cloacal flora of captive or wild snakes⁷ but, hitherto, still relatively little is known about the normal flora of ball pythons with only a few studies published⁸⁻¹⁰. Therefore, this study aims to evaluate the normal aerobic oral bacterial flora of *P. regius*.

Materials & methods

Twenty healthy ball pythons were selected from a breeder, consisting of 12 females and 8 males, with ages ranging from 3 to 13 years (mean of 7 years). Using aseptic technique, oral swabs were collected (Fig. 1) and preserved in Amies medium. Samples were supplemented with Brain-heart infusion broth, incubated at 37°C for 24h and then streaked onto selective and chromogenic media. Plates were incubated at 37°C for 24-72h followed by Gram staining and bacteria identification using a VITEK® 2 system.

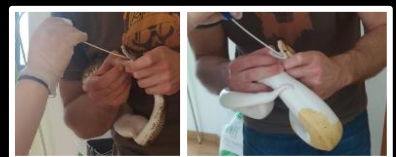
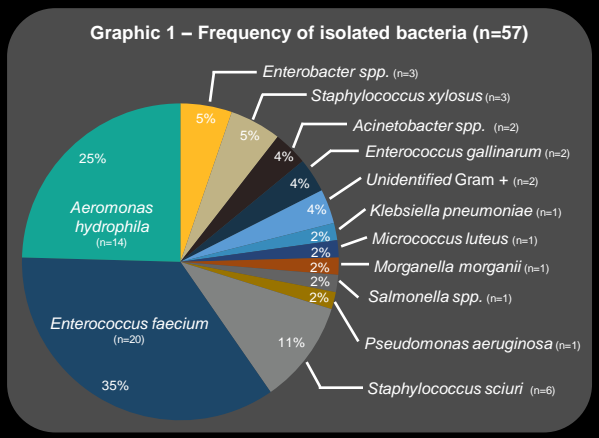


Fig. 1 – Oral swab collection

Results and discussion

In a sample of 20 ball pythons, born and bred in captivity in a rack system, the aerobic oral flora was evaluated. All animals presented a polymicrobial flora with distinct diversities. Most ball pythons (n=15) presented cultures with 2 to 3 bacteria, 2 presented 4 bacteria and 3 presented 5 bacteria isolates. A total of 57 colonies were isolated, resulting in the identification of 12 species, five Gram-positive and seven Gram-negative, depicted in Graphic 1. This study is a contribute to the establishment of ball pythons' normal oral flora and identifies potentially pathogenic bacteria. These findings caution the need to further characterize the normal flora in this species. Ongoing studies will provide more data on the normal oral and cloacal bacterial flora of *Python regius* and evaluate the antibiotic susceptibility of this flora. This will allow us to assess the zoonotic potential of ball pythons by identifying potentially human pathogens and multidrug-resistant bacteria.



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