OCCURRENCE AND ANTIBIOTIC RESISTANCE OF *SALMONELLA SP.* IN SNAKES IN SINGAPORE

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Abstract

Snakes are known to be asymptomatic *Salmonella* carriers that can be a source of infections to humans. Treatment of salmonellosis may become complicated with the rise of the antibiotic resistance among the *Salmonella* strains. A study was conducted to determine the prevalence of *Salmonella* and its resistance towards antibiotics in snakes at the Singapore Zoo. Cloacal samples were collected from snakes at the zoo and were subjected to isolation and identification of *Salmonella sp.* and its resistance to commonly used antimicrobial agents. *Salmonella* sp. was present in 20 (65%) of 31 snakes sampled. A total of 9 different serovars were found, and the predominant serovars were *S.* Mountpleasan*i* (15%) and *S.* Cerro (15%); followed by *S.* Rissen (10*%), S.* Lohbruegge (10%), *S.* Lansing (5%), *S.* Hvittingfoss (5%), *S.* Sachsenwald (5%), *S.* Pomona (5%) and *S.* Lindern (5%). Twenty percent were unknown *Salmonella* serovars. The antibiotic susceptibility test revealed that all serotypes except for one were susceptible to six different antibiotics tested which included enrofloxacin (100%), marbofloxacin (100%), ceftiofur (100%), cephalexin (100%), chloramphenicol (95%) and amoxicillin (95%). The only serotype that was not susceptible to antibiotics was *S. Lohbruegge*. It was isolated from a corn snake and has an intermediate sensitivity towards chloramphenicol while resistant towards amoxicillin. The study showed snakes are infected with bacteria that could potentially transmit the infection to handlers and visitors. Thus precaution is advised when handling snakes.

Keywords: *Salmonella* sp., snakes, prevalence, antibiotic resistance