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VETERINARY VIEW

Possible effects of antibiotic therapy on digestion in a Solomon Island Skink, *Corucia zebrata*.

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The Solomon Island skink (*Corucia zebrata*) is currently under threat from collecting for the pet trade, habitat degradation and a limited geographical distribution (McCoy, 1980; Hoover, 1998). Captive breeding programmes may have a part to play in its recovery but if these are to contribute usefully it is important that attention is paid to all aspects of the species biology (e.g. Parker, 1983; Honneger, 1985; Cooper, 2000; Harmon, 2002; Mann & Meek, 2004). As with other true herbivorous reptiles, *C. zebrata* has an enlarged partitioned colon that slows the passage of digesta through the gut and provides microhabitats for the nematodes and microbes that have a key role in the digestive process (Iverson, 1982). There is even the possibility that the natural food plants of herbivorous reptiles influence the ecology of the intestinal fauna. For example, *Testudo hermanni* consumes several species of plants that contain toxic compounds (Meek, 1985; 1988) and it has been suggested these may regulate nematode population growth (Longepierre & Grenot, 1999). This complex method of digestion has significance for both the husbandry and medical aspects of herbivorous reptiles, since the delicate microbe and nematode populations may be adversely affected by certain antibiotics (e.g. Cooper; 1980; Innes, 2001) and hence information on potential problems in this area of interest should be highlighted. Here we briefly record a possible single incident of adverse affects concerning the use of antibiotics in *C. zebrata*.

A sub adult *C. zebrata*, one of a small colony of these lizards housed in a naturalistic enclosure (7.5 x 10 meters horizontally and 3.2 metres vertically) at Huddersfield Technical College, showed signs of a skin infection. The animal was taken to the local veterinary surgery for treatment and given an initial treatment of Baytril (dosage=1ml per 5kg body weight) repeated at 5 and 10 day intervals. The lizard was then given liquid recovery diet orally using syringe and subsequently appeared to have recovered, since it began feeding well on its normal diet of a mixture of fruits and vegetables and occasional giant mealworms: we presume it was also feeding on the vegetation growing in the enclosure which was normal practise for the colony. However, some weeks later it was noticed that there was a gradual decline in condition, despite a continuing good appetite. We considered the possibility that the antibiotic treatments may have had an adverse effect on the lizard's microbe and nematode population and hence we decided to induce `artificial coprophagy` in an attempt to `reintroduce` an intestinal fauna (Iverson, 1979;Troyer, 1982). This was achieved by offering several giant mealworms smeared with the faeces of its cage mates, a procedure that was repeated twice within the following week. In a relatively short time period, 2 weeks or so, the lizard began to regain condition and within approximately a 2 month period was back at normal weight.

The potential for the elimination of the intestinal faunas of herbivorous reptiles through the application of certain antibiotics has already been recognised and indeed Innes (2001) has cautioned against their use pointing out that animals should be monitored for maldigestion after antibiotic applications. Additionally, the Tewksbury Institute of Herpetology, which has an ongoing research programme on *C. zebrata*, avoids the regular use of anti-parasitic drugs such as Metronidazol unless potentially harmful protozoa have been identified as present (Richard Ogust, pers. communication). We suspect that this instance with *C. zebrata* was a case of maldigestion through the application of the antibiotic, although our evidence for this is circumstantial. Indeed there were several curious aspects concerning the incident. For instance, why we should have had to induce `artificial coprophagy` rather than the animal performing this naturally is not immediately obvious. It was perhaps also unexpected that there was even a decline in our animals condition, since in *Iguana iguana* microbe fermentation contributes to only around one third of daily energy requirements; juvenile iguanas without microbes still grow, but less quickly than those with microbes (Troyer, 1982). There are of course other possible explanations, for example social interactions could have constrained this individual to areas in the enclosure with sub-optimal temperatures; in *I. iguana* it is known for example that as a result of dietary differences between juveniles and adults the former require and regulate to higher body temperatures (Troyer, 1984). However, recent research on the *C. zebrata* population in question was unable to indicate any major differences in body temperatures between individuals (Mann & Meek, 2004) and in any case the subsequent recovery of the lizard would mitigate against this.

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