The use of spiny-tailed lizards *Uromastyx* spp. for medicinal purposes in Peninsular Malaysia

Or Oi Ching and Serene C.L. Chng

**INTRODUCTION**

Spiny-tailed lizards *Uromastyx* spp. consist of 20 recognized species that inhabit the deserts and semi-deserts from northern Africa across the Middle East to north-western India (Wilms et al., 2009; Wilms, et al., 2010). Also known as dabbo or dhab lizards, they are hunted and traded for their purported medicinal value, as well as for meat and for the pet trade (Mahmood et al., 2011; Subramanian and Vikram Reddy, 2012; Wilms et al., 2012; Das et al., 2013; Pradhan et al., 2014). Large numbers are taken from the wild in Saudi Arabia and sold to middlemen for around SAR 1000–1500 (USD 140) (Anon, 2015; Faiza, 2015). Poaching techniques include pouring water or blowing smoke into burrows to force animals out, or shooting them with guns (Reuters, 2013; Faiza, 2015). The lizards are often kept alive until delivery to slaughterhouses, with their spines often broken to prevent them from escaping (Conservation India, 2014; Faiza, 2015).

Of the known *Uromastyx* species, eight are listed in the IUCN Red List of Threatened Species, with two assessed as Vulnerable, three as Near Threatened and three as Least Concern (IUCN, 2015). The entire *Uromastyx* genus has been listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 1977, prohibiting international commercial trade in wild specimens of the species unless accompanied by the required CITES export permits. A study on CITES data trade records of *Uromastyx* spp. reported over 200,000 specimens traded internationally, with an increasing trend after 1994 (Knapp, 2004). Spiny-tailed lizard species are also protected by national laws in many range countries.

Unregulated and unsustainable hunting of spiny-tailed lizards may adversely affect the ecosystem (Yom-Tov, 2003), as they are an important prey species (Conservation India, 2014), and their burrows serve as thermal refuges for many other species (Wilms et al., 2010). These lizards feed on plants and insects, providing some degree of pest control, and are also scavengers (Castilla et al., 2011; Subramanian and Vikram Reddy, 2012).

**BACKGROUND**

The sale of spiny-tailed lizard parts and products used for traditional medicine in Peninsular Malaysia first came to TRAFFIC’s attention in the early 1990s, when instances were reported by concerned members of the public (C.R. Shepherd, pers. comm., 2013) and were observed by TRAFFIC staff, with night market stalls selling the products sometimes displaying boards explaining the lizard’s purported medicinal values (S. Broad pers. comm., 2015). Such products have reportedly been promoted in Malaysia since at least 1995 as a treatment for over 20 critical illnesses such as diabetes, heart disease, hypertension, gout, kidney problems and sexual dysfunction (Utusan Melayu, 2014) (Fig. 1).

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1Exchange rate of USD 1 = SAR 3.75 (OANDA, September 2015).
Wildlife Conservation Act 2010 in Peninsular Malaysia, Wild Life Protection Ordinance 1998 in Sarawak and Wildlife Conservation Enactment 1997 in Sabah. In Peninsular Malaysia, where the trade is observed in this study, any violation of the Wildlife Conservation Act 2010 carries a fine of up to MYR50 000 (USD13 650) and/or two years’ imprisonment. The penalty is higher where immature or female specimens are involved.

Furthermore, under the Sales of Drugs Act 1952, all pharmaceutical products for sale in Malaysia, including traditional medicines, require compulsory registration with the Drug Control Authority under the Ministry of Health’s National Pharmaceutical Control Bureau (NPCB). The Medicines (Advertisement and Sale Act) 1956 requires that all medicines for sale list all active constituents and ingredients in English or Bahasa Malaysia.

METHODS

The availability of spiny-tailed lizard-based products used for medicinal purposes in Kuala Lumpur and the State of Selangor was assessed between January and June 2015. These areas were selected due to previously reported cases of spiny-tailed lizard-based products being offered for sale, and based on background research identifying the highest number of distributors there.

An internet search in Malay and English of websites in Malaysia on the availability of spiny-tailed lizard products referenced for such products: “Ubat Dhabsinai” and “dhab sinai”, both of which refer to Uromastyx aegyptia-based medicine. From this search, a total of 143 spiny-tailed lizard product distributors were found and contacted directly by phone. Researchers used semi-structured methods to enquire about spiny-tailed lizard products sold.

Rapid market surveys were then conducted at locations (Kota Damansara, Shah Alam, Masjid Jamek and Chow Kit) where researchers, posing as potential buyers, investigated traditional medicine shops and night markets to determine the availability of spiny-tailed lizard-based products.

LEGISLATION

In Malaysia, federal laws apply across the nation and take precedence over State laws enacted by State Legislative Assemblies. However, under the constitution of Malaysia, some federal laws are applied differently in Sabah and Sarawak on a number of matters, such as national resource management. As CITES-listed species, international commercial trade in spiny-tailed lizards is regulated by the International Trade in Endangered Species Act 2008 (federal law). Individuals violating this Act can be fined up to MYR100 000 (USD27299) or sentenced to seven years’ imprisonment, or both, upon conviction. Spiny-tailed lizards are further protected as a genus under the

\[1\] Exchange rate of USD1=MYR3.78 (OANDA, June 2015).

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An internet search in Malay and English of websites in Malaysia on the availability of spiny-tailed lizard products was first conducted using key words commonly referenced for such products: “Ubat Dhabsinai” (Dhabsinai medicine), and “ubat dhab” and “dhab sinai”, both of which refer to Uromastyx-based medicine. From this search, a total of 143 spiny-tailed lizard product distributors were found and contacted directly by phone. Researchers used semi-structured methods to enquire about spiny-tailed lizard products sold.

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\[1\] Exchange rate of USD1=MYR3.78 (OANDA, June 2015).
Direct communications with listed product distributors
Of the 143 distributors across Peninsular Malaysia found through online searches during the course of the survey, 66 based in Kuala Lumpur and Selangor were contacted, of which 53% (n=35 individuals) responded to questions about the availability of spiny-tailed lizard-based products. Of these, 86% of individuals claimed they had spiny-tailed lizard-based products available for distribution in the form of capsules, fats and oil, while the rest said that they were no longer stocking the product. It was not possible to assess the actual quantities of product types that were available.

Internet research
Spiny-tailed lizard-based medicinal products could be easily purchased online and are promoted on many websites and open Facebook pages. A prominent Facebook page offering spiny-tailed lizard-based medicinal products shows a total of 7210 “Likes” and another with 1978 “Likes” suggesting a minimum number of people who have seen the advertisements and could be potential consumers.

In addition to the surveys in Kuala Lumpur and Selangor, spiny-tailed lizard products (capsules, oil and dried skins) were also observed for sale in two locations on separate occasions in the State of Perak during the survey period (Or, O.C., pers. obs; Muhamad, H.S., in. litt., May 2015).

Sellers use the term “lemak” for fat taken directly from the animal, and either sold raw or processed into oils.

Table 1. Advertised prices of spiny-tailed lizard-based products recorded in this study from market surveys, direct communications with distributors and at the MAHA Fair, 2014. ^A price was quoted even though the trader claimed the animals were not for sale; ^A new product launched in 2015 for women containing Manjakani, a herbal ingredient.

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>PRICE PER ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live animal</td>
<td>MYR USD</td>
</tr>
<tr>
<td>Medicated oil (30 ml)</td>
<td>20–45</td>
</tr>
<tr>
<td>Capsules (60 capsules)</td>
<td>70–90</td>
</tr>
<tr>
<td>Fats</td>
<td>45–50</td>
</tr>
<tr>
<td>Capsules, with additional herb known as Manjakani®</td>
<td>50–90</td>
</tr>
<tr>
<td>Coffee mix (beverage)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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1Exchange rate of USD=MYR 3.78 (OANDA, June 2015); 2Exchange rate of USD=MYR 3.30 (OANDA, November 2014).
Short Communication

Prices

Market prices for various spiny-tailed lizard products ranged from between MYR3 (USD0.89) for a packet of coffee-mix claiming to contain spiny-tailed lizard derivatives, to MYR50–90 (USD13.23–23.81) for a bottle of 60 capsules, which was the most commonly available product. A live animal was said to be worth MYR7000 (USD2071) but was not for sale (Table 1).

CITES trade records

According to the UNEP-WCMC CITES trade database, a total of 834 live animals categorized as “live” were imported into Malaysia between 2000 and 2014 (Table 2), with no records available prior to that. Many animals were re-exported from the USA, and mostly originated from Mali (Table 2). The importation of parts or derivatives has never been recorded on the database. Although spiny-tailed lizard–based products were observed for sale in the country in 1994 (S. Broad, pers. comm., 2015), there were no records of spiny-tailed lizards being imported into Malaysia between 1990 and 1999, which suggests that during the 1990s, any animals or derivatives brought into the country were imported without official documentation.

Discussion

Legality issues of trade in Malaysia

As stated above, only one product brand is being offered for retail sale in Malaysia, and appears to be owned by a Malaysian-registered company. It has only been permitted to keep one species—Sudan Mastigure—according to the approval document displayed on the company’s website. However, there are claims by the trader in online sources that these spiny-tailed lizard–based products are made of Egyptian Spiny-tailed Lizard. Nowhere on the packaging of products observed for sale are any spiny-tailed lizard species mentioned (Fig. 4), despite their being advertised as the main active ingredient. It is possible that by not listing the species on the ingredients list, manufacturers evade screening processes by NPCB and DWNP.

Despite the reported sale of spiny-tailed lizard-based medicinal products in Peninsular Malaysia since the early 1990s (Utusan Melayu, 2014; S. Broad, in litt., February 2016), the CITES trade database has no record of the importation of this genus into Malaysia between 1990 and 1999, and no records of parts and derivatives (UNEP-WCMC, various dates). This does not correspond with the sellers’ claims on their website that dried spiny-tailed lizard (assumed to be parts and derivatives) were obtained from suppliers in Egypt for further processing into products in Malaysia. Furthermore, Egypt has imposed an export ban on some Uromastyx species including U. aegyptia since 1992 (CITES, 1992). This suggests that animals and their parts may have been imported into Malaysia without official documentation (i.e. contravening CITES). An unverified source from 2010 claimed that he had smuggled live spiny-tailed lizards from Jordan into Malaysia in his check-in bag (Kamato, 2010) and it is possible that some products could have been sourced from smuggled animals. These apparent discrepancies should be checked and verified by the authorities.

From 2013–2014, three trade observations about the sale of spiny-tailed lizard-based products involving one night market stall and two premises were reported to the Department of Wildlife and National Parks (DWNP). Two of the raids did not find any spiny-tailed lizard parts and derivatives, while another resulted in confiscation of two suspected spiny-tailed lizard trophies, with investigations ongoing (MYCAT, 2015).

As a traditional medicine, spiny-tailed lizard–based products in the form of capsules sold need to be (and have been) registered by NPCB. However, despite the claims...
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S H O R T   C O M M U N I C A T I O N

Dhabsinai capsule products are certified halal by the governmental Department of Islamic Development Malaysia (JAKIM). Product brochures also promote spiny-tailed lizards as herbivores and consumption is therefore not prohibited in Islamic scripture; however, it is worth noting that Castilla et al. (2011) have presented evidence of scavenging behaviours in Egyptian Spiny-tailed Lizards. It is unclear if this new finding will affect the halal status of spiny-tailed lizards; this will require further investigation.

Conservation concern

Overhunting of spiny-tailed lizard species has been reported as a threat to their survival in range countries, including Egypt, India and Pakistan (Wilms et al., 2012; Rasheed, 2013; Conservation India, 2014); locals in Saudi Arabia have reported dwindling numbers of spiny-tailed lizards as a result of overhunting (Reuters, 2013), and in some regions the species can no longer be found (Habib, 2014). Often, this animal is sold in local markets in large numbers (Abdulaziz et al., 2001). One of the species claimed to be used in medicines in Peninsular Malaysia—the Egyptian Spiny-tailed Lizard—is already listed as Vulnerable by IUCN, with a decreasing population trend and trade cited as a conservation threat (IUCN, 2015). More consistent monitoring is required to understand the prevalence of trade in Malaysia or other countries, and the impact on wild populations.

that the main active ingredient in the capsules is spiny-tailed lizard derivative, products observed in trade during this survey did not list it as an ingredient; only plant-based ingredients were listed (Fig. 4). This appears to be a violation of the Medicines (Sales and Advertisement) Act 1956. Both authorities have been contacted to alert them to this, and to clarify the registration status of the company and product.

Trade dynamics of spiny-tailed lizard-based products in Malaysia

Products of this company have been promoted as the only medicinal products containing spiny-tailed lizards available in Malaysia and have been marketed openly for over a decade, evolving into a business that could be gaining in popularity, as suggested by the company’s frequent participation in trade fairs and the introduction of a new product. The availability of spiny-tailed lizard-based products for sale for more than two decades suggests there is a steady supply and demand. Furthermore, these products are actively promoted at various national trade events such as MAHA and the Malaysian International Halal Showcase, a trade show promoting Halal products and services to international markets.

Online sources promoting the products appear to target a Muslim audience as products are promoted as halal, a hindering Islamic certification concerning the consumption of certain products/foods according to religious rules.

Table 2. Live Spiny-tailed lizard species reported to have been imported for commercial purposes by Malaysia between 1990 and 2014.

<table>
<thead>
<tr>
<th>Year</th>
<th>Taxon</th>
<th>Exporter</th>
<th>Origin</th>
<th>Importer reported quantity</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990–1999</td>
<td>No records of trade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>Uromastyx dispar</td>
<td>Ghana</td>
<td>Mali</td>
<td>10</td>
<td>W</td>
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<tr>
<td>2007</td>
<td>Uromastyx dispar</td>
<td>USA</td>
<td>Mali</td>
<td>10</td>
<td>W</td>
</tr>
<tr>
<td>2000</td>
<td>Uromastyx dispar</td>
<td>USA</td>
<td>Mali</td>
<td>25</td>
<td>W</td>
</tr>
<tr>
<td>2006</td>
<td>Uromastyx ocellata</td>
<td>Sudan</td>
<td>Mali</td>
<td>20</td>
<td>C</td>
</tr>
<tr>
<td>2006</td>
<td>Uromastyx ornata</td>
<td>Jordan</td>
<td>Mali</td>
<td>30</td>
<td>C</td>
</tr>
<tr>
<td>2008</td>
<td>Uromastyx dispar</td>
<td>Mali</td>
<td>Mali</td>
<td>4</td>
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<td>2009</td>
<td>Uromastyx dispar</td>
<td>USA</td>
<td>Mali</td>
<td>6</td>
<td>W</td>
</tr>
<tr>
<td>2009</td>
<td>Uromastyx geyri</td>
<td>USA</td>
<td>Mali</td>
<td>6</td>
<td>W</td>
</tr>
<tr>
<td>2010</td>
<td>Uromastyx aethiopica</td>
<td>Sudan</td>
<td>Ghana</td>
<td>200</td>
<td>W</td>
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<tr>
<td>2010</td>
<td>Uromastyx acanthinura</td>
<td>Sudan</td>
<td>Mali</td>
<td>10</td>
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</tr>
<tr>
<td>2010</td>
<td>Uromastyx acanthinura</td>
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<td>Ghana</td>
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<tr>
<td>2010</td>
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<td>Sudan</td>
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<td>W</td>
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<td>2011</td>
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<tr>
<td>2012</td>
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<td>2013–2014</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>834</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Live Spiny-tailed lizard species reported to have been imported for commercial purposes by Malaysia between 1990 and 2014.

1the reported source of the transaction relates to the original source of the species being traded: W=specimen taken from the wild; C=animals bred in captivity. Source: CITES Trade database
CONCLUSIONS

Traditional medicine products reportedly containing spiny-tailed lizard parts and derivatives are being traded in Malaysia. Due to apparent discrepancies uncovered during this study, there are concerns that some of this trade may be taking place without proper import documentation. Furthermore, registered products observed do not include spiny-tailed lizards and derivatives on the ingredients list despite their being advertised as the main active ingredient. This omission contravenes Malaysian legislation governing the sale and advertising of medicines.

TRAFFIC is working with DWNP and NPCB to verify the trade of spiny-tailed lizard products, and to recommend follow-up regulatory actions where required. Further monitoring and comprehensive investigation into the trade of this genus in Malaysia is recommended. As this emerging trade could potentially be a threat to wild spiny-tailed lizard populations, it is also recommended that range countries from which the animals are exported monitor wild populations and regulate hunting and export.

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REFERENCES


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