

Water Monitor Lizard (*Varanus salvator*) Satay: A Treatment for Skin Ailments in Muarabinuangun and Cisiih, Indonesia

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Abstract - *Varanus salvator* meat is consumed as a protein source in certain areas throughout its Southeast Asian range, while in others it is shunned because of religious or traditional beliefs, or simply avoided due to taste preferences. Here we document the use of *Varanus salvator* for medicinal purposes in Muarabinuangun and Cisiih, part of Pandeglang District in the Province of Banten, Indonesia, where villagers report consuming grilled *V. salvator* meat as a cure for various skin ailments.

The meat of *Varanus salvator*, a large-bodied species of monitor lizard found in southern and Southeast Asia (Gaulke & Horn, 2004; Bennett *et al.*, 2010; Koch *et al.*, 2013), is not often consumed as a source of protein in Indonesia (Luxmoore & Groombridge, 1990). However, there are a few local ethnic groups that will eat *V. salvator*, such as the Bataks in North Sumatra, the Dayaks in Kalimantan (Luxmoore & Groombridge, 1990), and the Minahasa people of North Sulawesi who consider *V. salvator* to be a favored delicacy (De Lisle, 2007). This note documents the consumption of *V. salvator* meat in two village areas on the southwest coast of Java, Indonesia, where some consider it to be an effective remedy for common skin ailments such as *Pityriasis versicolor* and eczema.

Varanus salvator is a species common to both Muarabinuangun and Cisiih, two village areas

located approximately 45 km apart in Banten province, Indonesia. Residents of Muarabinuangun and Cisiih were interviewed as part of a larger interdisciplinary study investigating local perceptions and attitudes towards *V. salvator* as well as the behavior and resource use of this species (Uyeda *et al.*, 2012, 2013). Through the use of open-ended interviews, participants were asked about experiences and knowledge related to *V. salvator*. Each interview consisted of 1-3 participants, with a total of 55 participants over the course of 35 interviews. Interviews were conducted in Bahasa Indonesia, digitally recorded, and later transcribed and translated into English.

Interviews revealed local knowledge regarding the consumption of *V. salvator* meat as a cure for skin ailments associated with itching. Fourteen participants mentioned specific knowledge regarding the medicinal use of *V. salvator* meat, with four of these detailing

Table 1. Individual knowledge and use of *Varanus salvator* meat for medicinal purposes in Muarabinuangun (MB) and Cisiih, Indonesia.

Location	Knowledge from a third-party source/ personal experience	Ailment Treated	Preparation	Reported Effectiveness
MB	local knowledge	eczema	-	-
MB	local knowledge	eczema, asthma	-	-
MB	local knowledge	"itching"	satay	-
MB	local knowledge	"itching"	grill meat	-
MB	local knowledge	"skin disease"	satay	-
MB	local knowledge	"itching"	-	-
Cisiih	local knowledge	asthma	satay	-
Cisiih	local knowledge	-	satay	-
Cisiih	local knowledge	"itching"	-	-
Cisiih	local knowledge	"itching"	-	-
MB	consumed meat	<i>P. versicolor</i> , eczema, <i>T. corporis</i>	satay	healed by the next day
MB	consumed meat	eczema, "skin disease"	-	healed
MB	consumed meat *	eczema, "sores"	grill meat	healed within a week
Cisiih	consumed meat	eczema	satay	healed within 2-3 days

*the interviewee and his wife indicated that their young son had consumed the meat for his skin ailment

personal experiences in utilizing *V. salvator* meat for its curative properties (Table 1). Participants mentioned the use of *V. salvator* meat to treat *Pityriasis versicolor* (*panu* in Bahasa Indonesia), a yeast overgrowth on the skin common in many tropical areas (Erchiga & Hay, 2010), *Tinea corporis* (*kurap* in Bahasa Indonesia), a fungal infection commonly known as ringworm, and eczema (*eksim* in Bahasa Indonesia), a term often used synonymously with atopic dermatitis (Burgess *et al.*, 2009), a disease associated with itching and redness of the skin. Several participants did not specify a particular skin ailment treated with *V. salvator* meat, using instead either the Indonesian phrase *gatal-gatal*, which translates to a general “itching”, or *penyakit kulit*, translating to “skin disease”. One participant referred to “ulcerations” or “sores” (*koreng*) that could be alleviated by the consumption of *V. salvator* meat. A single preparation method was reported; *V. salvator* meat was prepared as a satay (the meat grilled on a skewer) or grilled, and then eaten. Participants indicated that consuming a one-time “dose”, consisting of only a small amount of meat, was enough to achieve the curative effect. Each of the individuals who had personal experience with the consumption of *V. salvator* for a skin ailment indicated

that eating the *V. salvator* meat resulted in a noticeable improvement in the skin condition within a short period of time (Table 1).

Interviewees further explained that *V. salvator* meat was only effective for the treatment of certain types of skin ailments, indicating that direct injuries or scars would not be positively affected by the consumption of *V. salvator* meat. However, one individual reported that oil extracted from *V. salvator* could be applied topically to effectively reduce the prominence of scars. Two interviewees mentioned that *V. salvator* meat could be eaten to combat the symptoms of asthma, although none of the study participants reported personal experience in consuming *V. salvator* for this purpose.

Muarabinuangun and Cisiih are located in predominantly Muslim areas, where *V. salvator* is generally not consumed as a regular dietary item or source of protein due to religious beliefs. Individuals who had eaten *V. salvator* meat as a skin cure specified that they would not have eaten the meat other than for medical purposes, although it was not clear if this was for religious reasons or simply due to a dislike for *V. salvator* meat. Throughout the course of the study, only two individuals indicated that they had occasionally

eaten *V. salvator* meat as a protein source rather than as a medical treatment.

Throughout Asia, varanid body parts or extracts have been utilized in treating a variety of ailments. For example, varanid gall bladders are said to cure heart problems, impotency, and liver failure (Bennett, 1995) and gall bladders from *V. salvator* have been noted in the Asian medicine trade (Luxmoore & Groombridge, 1990). The fat and oil of *V. bengalensis* have been utilized by tribes in Pakistan as a salve for skin infections and for relief of rheumatic pain (Hashmi *et al.*, 2013). In India, *V. bengalensis* meat is believed to aid lung muscles in recovering from lack of oxygen, and powdered *V. bengalensis* meat is used in energy tonics for the relief of asthma (Subramanean & Reddy, 2012). Khatiwada & Ghimire (2009) reported that the meat of *V. flavescens* is consumed for medicinal purposes in Nepal, where individuals also believe it to be an effective treatment for asthma (in addition to other conditions such as tuberculosis and leprosy).

The number of interviewees who mentioned *V. salvator* satay as a known cure for skin ailments, and the presence of individuals who had engaged in the consumption of *V. salvator* meat as medicine despite the predominant religious practices suggest that belief in the efficacy of this treatment is strongly supported by traditional knowledge in our study areas. Reports of varanid meat consumption to treat asthma should also be noted as eczema and asthma are characterized by similar allergic mechanisms (e.g., Cookson, 2004), with recent literature identifying possible links between eczema and the development of asthma (e.g., Burgess *et al.*, 2009; von Kobyletzki *et al.*, 2012). To our knowledge, the effectiveness of varanid products in medicinal applications has not been systematically or empirically tested. Future research directions might include investigating the prevalence of medicinal *V. salvator* consumption throughout the species' range, as well as laboratory analysis to evaluate the potential curative properties of *V. salvator* meat.

Acknowledgments - We would like to thank Institut Pertanian Bogor (Bogor Agricultural University) Primate Research Center and the University of Washington Center for Global Field Study for supporting this ongoing research project and for providing logistical assistance. In addition, we would like to thank the University of Washington School of Environmental and Forest Resources for financial support, and the Muara Dua base camp staff and Tinjil Island natural habitat breeding facility staff for their continued assistance.

We also extend our appreciation to the members of the University of Washington Predator Ecology Lab for their helpful comments and to Stanley Asah for his insight and continued guidance. Iqbal Hariadi and Zahrina Noorputeri kindly helped with the facilitation of interviews, and Zahrina Noorputeri additionally aided in the processing of interview data. This project has received approval from the Indonesian Ministry of Research and Technology, permit number 290/SIP/FRP/SM/VIII/2013.

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