

ANIMAL UTILIZATION AS TRADITIONAL MEDICINE IN CENTRAL JAVA.

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Introduction

In Indonesia, the use of wild animal as traditional medicine is well known by the local but not well studied. The use of wild animal as medicinal source also occurs in countries. In Asia, countries such as India and Malaysia is also known to use wild animal. China is the biggest consumers of wild animal for medicine; no less of 1,500 species is listed (Alves and Rosa 2005). This aimed to identify utilization of wild animal as traditional medicine and its economics value in Central Java, Indonesia.

Materials and Methods

Research was carried out from May to August 2007 in 19 sub-provinces of Central Java (Residences of Kudus, Pati, Rembang, Jepara, Sragen, Karanganyar, Sukoharjo, Klaten, Boyolali, Magelang, Semarang, Cilacap, Banyumas, Brebes, Pemalang, and cities of Tegal, Surakarta, Magelang and Semarang). Information was obtained through semi-structured questionnaires applied to 105 respondents, which consist of 30 harvesters, 30 collectors, 30 traditional pharmacist and 30 sellers. Data taken were name of species taken for medicinal purposes, the origin of harvest, harvest method, medicinal purposes and monetary value.

Results and Discussions

We recorded 54 animal species utilized in traditional medicine, consisting of:

- 1) Two species of livestock animals: water buffaloes and marmot.
- 2) Ten species of invertebrates: scorpion (*Diplocentrus whitei*), pearl oyster (*Pinctata maxima*), centipede (*Scolopendro* sp), earthworm *Lumbricus rubellus*, medicinal leech (*Hirudo medicinalis*), sea urchin (*Diadema saxatile*), edible land snail (*Achatina fulica*), Sea cucumber

(*Sticophus* sp), Antlion *Myrmeleon* sp) dan Bee (*Apis* sp)

- 3) Four species of fishes: Eel (*Synbranus macrostema*), Shark (*Centrophorus squamosus*), snakehead fish (*Channa striata*) and Sea horse (*Hyppocampus hystrix*)
- 4) Three species of birds: Fulvous-breasted Woodpecker (*Dendrocopos macei*), Flycatcher (*Cyornis* sp) and Edible-nest Swiftlet (*Collocalia* sp)
- 5) Eleven species of mammals: squirrel (*Callosciurus* sp.), Tree Shrew (*Tupaia* sp.), bats (*Cynopterus* sp.), Malayan Flying Fox (*Pteropus vampyrus*), Collared Mongoose (*Herpestes semitorquatus*), Long-tailed Macaque (*Macaca fascicularis*), Malayan Porcupine (*Hystrix brachyura*), Asian Palm Civet (*Paradoxurus hermaphroditus*), Small Indian Civet (*Viverricula indica*), Deer (*Cervus* sp), Malayan pangolins (*Manis javanica*)
- 6) Three species of Amphibians: eating frog (*Fejervarya cancrivora*), Giant Javan frog (*Limnodynastes macrodon*) and Common Toad (*Bufo* sp.)
- 7) Twenty-one species of reptiles: Water monitor (*Varanus salvator*), crocodiles (*Crocodylus porosus*), shelled turtle (*Amyda cartilaginea*), green turtle (*Chelonia mydas*), Tokay gecko (*Gecko gecko*), Agamid flying lizard (*Draco* sp), House Gecko (*Hemidactylus frenatus*), common skink (*Eutropis* sp.), Green Crested lizard (*Bronchocela* sp.), King (*Ophiophagus hannah*), Javan Cobra (*Naja sputatrix*), Indochinese Rat Snake (*Ptyas korros*), Reticulated Python (*Python reticulatus*), Asian Rat Snake (*Ptyas mucosus*), Copperhead Ratsnake (*Elaphe radiata*), Golden Banded Snake (*Bungarus fasciatus*)

Malayan krait (*Bungarus candidus*), Banded Mangrove Snake (*Boiga dendrophila*), Elephant trunk snake (*Acrochordus javanicus*), Sunbeam Snake (*Xenopeltis unicolor*) and Puff-faced Water Snake (*Homalopsis buccata*).

Three species of mammals (porcupine, deer and pangolin) is listed on protected status by Indonesian law as well as two species of reptiles (saltwater crocodiles and green turtle). Products from these 54 species of wild animal are recommended for the treatment of 50 types of illnesses. The most frequently quoted treatments were for respiratory system (20 species), skin disease (18 species) and increasing stamina and appetite (14 species). Most people believed that the Javan spitting cobra (*Naja sputatrix*) has the most medicinal properties compared to other species (25.10%) followed by water monitor (11.52%), Tokay gecko (10.7%). Malayan Flying Fox (8.32 %) and soft-shelled turtle (4.53%).

Although medicinal product from wild animal are often cooked, however some parts such as blood, gills, bone marrow and liver is used in raw form. The use of raw parts is alarming, since it could lead to zoonotic agents causing diseases or infection to human. The predicted number of wild animal population harvested is high. For instance, Tokay Gecko which is the highest rank in number of harvested, reaches up to 975 thousands animals per year.

All wild animal used for traditional medicine is harvested from the wild, no species except for livestock animal is captive-breed specifically. Harvester sold the animal to collectors, and small collector then sold the animal to bigger collector or straight to traditional pharmacist, sellers or exporters. Traditional pharmacist sold the products to consumers or to sellers who will then sold it to consumers. The marketing of products by

traditional pharmacist is conducted at their own home (20%), kiosk (16.67%), street stall (60%) or in clinic (3.33%).

Animal is sold live or in dead form. From harvester to collectors, the animal is usually sold alive, but later it will be killed and sold to the next level (traditional pharmacist, sellers, and exporters) in dried form, as meat only or in other type of herbal extract. The economic value of wild animal to human health in Central Java is estimated to reach Rp.1,421,714,004 per year (nearly US\$1.5 million).

Medicinal wild animal is used for local consumption and exported. Data from Central Java Provincial Commerce Board, showed that several wild animals are listed for exports such as swift lets nest to Canada; Dried geckoes, snake meat, dried snakes and snake blood to Hong Kong and Shark fin to Japan (Oisperindag Jateng 2006).

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