

# THE CURRENT STATUS OF FOOD-BORNE PARASITIC ZONOSSES IN INDONESIA

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**Abstract.** Only a few food-borne parasitic zoonoses have been reported in Indonesia. The most frequently observed food-borne parasitic diseases are: toxoplasmosis, taeniasis and cysticercosis. Little data are available on other parasitic zoonoses in Indonesia. Taeniasis has been reported in nine provinces. Toxoplasmosis in humans, with prevalence rates ranging from 1 to 60%, has been reported in 12 provinces; in animals, toxoplasmosis is known to occur throughout the country, with serologically positive cases in as many as 75% of animals examined. However, it is expected that other parasitic zoonoses, such as anisakiasis, fasciolopsiasis and echinostomiasis, will emerge as the popularity of exotic foods being served in Korean and Japanese restaurants spreads throughout Indonesian cities. This paper reviews the current status of parasitic zoonoses in Indonesia.

## HELMINTHS

### Trematodes

*Fasciolopsis buski* was first reported in humans from Indonesia in 1982, although it previously had been found in pigs. Two worms were vomited by a 11 year-old boy who lived in the Babirik Regency, South Kalimantan, and who had never left Indonesia (Hadidjaja *et al.*, 1982). A subsequent survey, conducted in several villages in the Babirik vicinity, revealed *F. buski* prevalence rates between 1 and 26% in various age/sex groups. Twenty-six percent of males, 15 to 19 years-old, and 20% of females, 10 to 24 years-old, were infected, according to records of the Department of Health in South Kalimantan for 1989-1990 (unpublished data).

Cases of echinostomiasis in humans, discovered during autopsies, were reported by Sandground and Prawirohardjo (1939). Most of the worms recovered were *Echinostoma ilocanum*, but some specimens of *Echinoparyphium recurvatum* and *Echinostoma revolutum* were also identified. Sandground (1939) subsequently reported that echinostomes were frequently recovered from field rats (*Rattus rattus* and *Rattus brevicaudatus*) near Jakarta. In the same report, Sandground

reported the discovery of an endemic focus of *E. ilocanum* in inhabitants of a rural colony for the insane near Jakarta. Several inmates had been seen consuming uncooked or raw snails (*Idiopoma javanica* and *Pila scutata*). Bonne and Sandground (1939) and Sandground and Bonne (1940) found a highly endemic focus of *Echinostoma echinatum* (= *Echinostoma lindoense*) transmission in Central Sulawesi. Infection rates in residents of the Lindu Valley varied from 24 to 96%. *Echinostoma malayanum* was found in humans in Sumatra (Bonne, 1941).

### Nematodes

Anisakiasis was first identified from fish in Indonesia in 1978; human anisakiasis has not yet been reported. Studies conducted by Hadidjaja *et al.* (1978) described anisakid larvae (*Anisakis* type I and *Terranova* type B) in three species of fish collected from waters surrounding the Seribu Islands, near Jakarta, and North Sulawesi. Most Indonesians traditionally do not eat raw fish, with the exception of some populations of the eastern provinces. Recently, however, Korean and Japanese restaurants in the metropolitan areas have begun providing their customers with raw fish to be barbecued. This culinary custom is expected to increase the risk of human anisakiasis in affluent

populations of the major cities of Indonesia.

### Gnathostomiasis

The status of gnathostomiasis in Indonesia was recently reviewed by Indwiarti (1990). Three species of fish in Indonesia have been found infected with *Gnathostoma spinigerum*: *Ophiocephalus striatus*, *Clarias batrachus* and *Cyprinus carpio*. Human gnathostomiasis is common in Japan and Thailand due to customs of eating raw fish. Naniura and Lavara, special dishes made from raw fish, are popular among the inhabitants in the provinces of North Sumatra and South Sulawesi, respectively. In addition, a raw tuna dish is a delicacy among islanders off the coast of North Sulawesi. These three dishes are potential sources of human gnathostomiasis in those areas. There have been only four human cases of gnathostomiasis. The earliest case was diagnosed in 1949. Recent cases were reported from North Sumatra, South Sulawesi and South Kalimantan.

### Cestodes

Both *Taenia saginata* and *Taenia solium* have been reported from Indonesia (Bonne, 1940). The first case of *T. saginata* was reported in 1867 among Dutch residents of Malang, East Java, and *T. solium* was first identified in an Indo-Chinese woman in Sarmarinda, East Kalimantan, by Bonne (1940). Stool surveys conducted in North Sumatra in 1984 and 1986 revealed prevalence rates of taeniasis of 9 to 12% in 334 specimens examined (unpublished data). Taeniasis also occurs in Bali. A stool survey conducted in Bali in 1984 identified taeniid eggs in 9.6% of 31 specimens (unpublished data).

Cysticercosis prevalence rates in pork from Bali ranged from 1.8 to 3.2% (Le Coultre, 1928 as referenced in Hadidjaja, 1971). The status of taeniasis and cysticercosis in Irian Jaya was reviewed by Hyndman (1986). Taeniasis was first reported in Irian Jaya near Lake Paniai in 1971 and the first case of human cysticercosis was confirmed in 1973. Since then many cases of taeniasis and cysticercosis (including neurocysticercosis) have been diagnosed in Irian Jaya with intestinal infection rates as high as 20%. In 1978 serological tests confirmed that at least 25% adults and children in Irian Jaya were infected with cysticercosis.

### PROTOZOA

Although antibodies specific for *Toxoplasma gondii* have been detected in human sera from Indonesia, the morbidity and mortality of the disease in humans is still unknown (Gandahasada, 1988). Serological surveys, conducted throughout Indonesia using several serological assays, indicated that toxoplasmosis occurs in humans throughout the country with serologically positive titers detected in 1 to 60% of populations surveyed. Likewise, more limited serological surveys of domestic animals revealed serologically positive titers in as high as 75% of the domestic animal populations sampled.

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