

CHAPTER 1 INTRODUCTION

1.1 Background

Historically domestic animals have the potential as a source of zoonotic diseases. However, in recent years it has been seen that free-living animals are the main source of pathogenic diseases that occur in humans. Especially in carnivorous animals there are various kinds of viruses, protozoa, and worms that can transmit to domestic animals and humans (Di Cerbo, 2008). One of the carnivorous animals around us is water monitor lizards, which have the potential to transmit zoonosis because meat and bile are consumed by humans. While the study of these animals is still very rare including a study of the digestive system. The morphology of the digestive organs in each animal species has differences, depending on habitat, type and eating behavior of these animals.

Based on habitat and food, monitor lizards have a high possibility of being infested by parasites. Several factors that can support the life and development of parasites include unhealthy food, polluted environment, and individual life behavior (Natasdisastra dan Agoes, 2009). Parasitic infestations cause a lot of harm to both the manager and keeper of infected animals because they can cause a decrease in the quality of monitor lizards both in captivity and in nature (Ramadhan, 2011).

According to Neta (2006) Parasitic worms can be found directly in the digestive tract, for example is *Acanthocephala*. It is a life-long worm that is parasitic in vertebrate intestines. *Acanthocephalans* also known as thorny-headed

worms. According to Saari (2019) as their name indicates, their head has a proboscis armed with numerous sclerotized hooks, by means of this proboscis the worm pierces the gut mucosa and attaches itself to the gut wall.

Acanthocephala is found in snakes, frogs, and lizards in both *cystacanth* and adult stages. Stadium *cystacanth*s are found in the abdominal cavity and adult stages are found in the digestive tract (Smales, 2007). Cases of human infected by acanthocephalan have been reported.. An 18-month-old child from Florida had acanthocephaliasis caused by *Macracanthorhynchusingens* because the patient was reported to have had possible contact with millipedes.(Mathison *et al.*, 2016). *Acanthocephala* has been distributed throughout the world in various definitive hosts of mammals, poultry, amphibians, reptiles and fish. Reptiles that have been identified in the world have reached 7,500 species (Ahmed *et al.*, 2009).

Water monitor lizard (*Varanus salvator*) is one of the reptile animals found in Indonesia (Gumilang, 2011). According to the Convention on International Trade in Endangered Species (CITES) of Wild Fauna and Flora, monitor lizards are included in the list of appendices II, which means they are not endangered, but these animals are feared to be endangered especially if there is illegal hunting and trading without supervision and empowerment (CITES, 2013). Nowadays the desire of the people to make reptiles as livestock starts a lot in Indonesia. Lizard is an animal that has commercial potential. Beautiful, strong skin and meat that has the properties of medicine for skin diseases are mostly targeted by hunters (Ramadhan, 2011).

Until now, research on monitor lizards, especially parasites in the digestive tract is still very limited. Based on the description above, the researchers wanted to do research on the identification of parasites in the digestive tract of watermonitor lizards (*Varanus salvator*) in Tulangan, Sidoarjo, which allegedly contained *Acanthocephala* worms in the intestine of the water monitor lizard, where previous research on this matter had never been done in Tulangan.

1.2 Formulation of Problem

Is there *Acanthocephala* contained in the digestive tract or body cavity of water monitor lizards (*Varanus salvator*) caught by water monitor lizard collectors in Tulangan, Sidoarjo?

1.3 Theoretical Base

Adult acanthocephalans attach to the digestive tract of a vertebrate host with their proboscis, exchanging nutrients, gases and wastes through the body wall of the host. (Goater *et al.*, 2014).

All *Acanthocephala* life cycles are indirect, with arthropod or crustacean as the intermediate host that have ingested egg that was voided from feces of a definitive host. All vertebrate classes could serve as definitive host of *Acanthocephala* (Richardson. 2013).

Acanthocephala sp. is an invertebrate that is parasitic throughout its life cycle. These worms are also called spiny head worms, with the worm's head called probosis. Cylindrical and about 0.5 - 2 cm long (Amin *et al.*, 2011).

1.4 Aims of Research

Know and identify *Acanthocephalan* that infect the digestive tract or body cavity of water monitor lizards (*Varanus salvator*).

1.5 Outcomes of Research

- 1) Provides information about acanthocephalan that infect the digestive tract of water monitor lizards (*Varanus salvator*).
- 2) Can be used as a reference for further research on parasites found in the digestive tract of water monitor lizards (*Varanus salvator*)
- 3) As a reference for the treatment of parasitic diseases on water monitor lizards (*Varanus salvator*) so as not to infect humans.