

Prevalence and Degree of Infections *Trichodina* sp. Protozoa on Mujair (*Oreochromis mossambicus*) Resources at Keramat Mengare Village, Bungah District, Gresik Regency.

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Abstract

The disease of fish is the most common problems in fishery resources. Fish can get sickness due to several factors, including the existence of parasites, feed and environmental conditions that are less supportive of fish life. Trichodina sp. is an fish ectoparasite in freshwater and seawater, one of the freshwater fish that is often attacked is mujair (Oreochromis mossambicus). The purpose of research was to determine prevalence and degree of infections Trichodina sp. protozoa on mujair resources. The research method is survey and random sampling. Location of sampling in ponds owned by farmers at Keramat Mengare Village, Bungah District, Gresik Regency. The result of research is prevalence and degree of infections Trichodina sp. is 91,87% and 54,81

Keywords: Prevalence, degree of infection, *Trichodina* sp., mujair (*Oreochromis mossambicus*).

1. INTRODUCTION

Fishery resources in Indonesia are abundant both of terrestrial and marine fisheries. Fishery resources can be utilized for the benefit of the people as a source of animal protein of high nutritional value. One of the fish that is often consumed by the community is the mujair (*Oreochromis mossambicus*). Mujair has a very big business prospects, lately demand is increasing because it has a high enough protein content, it's tasty and low price (Rahayu et al., 2013).

The disease of fish is the most common problems in fishery resources. Fish can get sickness due to several factors, including the existence of parasites, feed and environmental conditions that are less supportive of fish life. Improper interaction of these factors will cause the fish to experience stress, so that the self-defense mechanism has become weak, susceptible to disease and death. Disease attacks can cause major losses in fisheries business because it can cause the death of biota cultivation quickly. One type of disease that attacks mujair is a parasite.

Protozoa parasites that often attack or cause death in cultivated fish include *Ichthyophthirius multifiliis*, *Oodinium* sp., and *Trichodina* sp.

(Irianto, 2005). The infection rate of *Trichodina* sp. in fish seed can reach 80%. *Trichodina* sp. is an fish ectoparasite in freshwater and seawater. One of the freshwater fish that is often attacked is mujair. *Trichodina* sp. that infects fish causes a disease called *Trichodiniasis*. This disease is more common in larvae and small fish. *Trichodiniasis* in some cases can cause severe damage to the host, which can lead to host mortality (Woo, 2006).

The purpose of research was to determine the prevalence and degree of infections *Trichodina* sp. protozoa on mujair resources at Keramat Mengare Village, Bungah District, Gresik Regency. The results of this study can be used as a reference for disease control efforts.

2. METHOD

This research is a survey method with random sampling technique. The sample used is mujair with size of 10 - 25 cm as many as 123 randomly taken from 5 location of community pond in Keramat Mengare Village, Bungah District, Gresik Regency, then fish samples taken to Parasite Laboratory of Fish Quarantine Center Class I Juanda Surabaya to be observed and analyzed. Samples during transport are packed tightly with sufficient

oxygen so that the fish can live until brought to the laboratory.

Trichodina sp. examination is done by observing external signs on the surface of the body and fish gills to determine the presence of parasites in the fish. The process of taking mucus in the fish is done by mucus on the fish body surface from the head toward the tail, then placed on top of the glass object and dropped

with aquades and then observed under the microscope. Observation on gill examination, both gills were taken, gill sheets separated, then placed on top of glass object and in aquades drops, and then observed under a microscope. Data obtained from samples examined, calculated the prevalence and degree of infection with the following formula:

$$\text{Prevalence} = \frac{\text{The number of fish affected by parasites}}{\text{The number of samples observed}} \times 100 \%$$

$$\text{Degree of infection} = \frac{\text{The number of parasites that attack the fish}}{\text{The number of fish affected by parasites}}$$

The result will be analyzed descriptively by displaying numbers, tables, an graphs/histograms which provide information and description of a situation.

3. RESEARCH FINDINGS AND DISCUSSION

Research has been conducted on 123 mujair showed that the prevalence and degree of infection *Trichodina* sp. in this research were 91.87% and 54.81 (Table 1). The prevalence

and degree of infection *Trichodina* sp. in mujair resource in Keramat Mengare Village, Bungah District, Gresik Regency is very high. The high prevalence and degree of infection *Trichodina* sp. can be influenced by several factors, such as pond water conditions that support for the life of these ectoparasites. The high value of the degree of infection in the fish can also be affected by the high density of fish in aquaculture ponds (Rustikawati et al., 2004; Utami dan Rokhmani, 2015).

Tabel 1. Prevalence And Degree Of Infections *Trichodina*, sp. On Mujair

Locations of Cultivation	Number of Samples (tail)	Infected fish number <i>Trichodina</i> , sp.		Number of <i>Trichodina</i> sp. on fish	Prevalence (%)	Degree of Infections
		Positive (tail)	Negative (tail)			
Keramat Mengare Village, Gresik	123	113	10	6193	91,87	54,81

High density can lead to fish stress. In ponds with high fish density, fish will rub against each other, so that ectoparasitic infection will occur quickly. Woo (2006) and Bosson (2010) werw argue about the high degree of infection in fish can be caused ectoparasites can multiply by dividing rapidly and moving actively.. *Trichodina* sp. is cosmopolitan and can breed rapidly, so it has a wide spread, and is a common parasite found in freshwater fish and can infect various species of fish (Basson and Van As, 2006).

Transmission of *Trichodina* sp. is supported by water quality management and poor pond

maintenance techniques, that high stocking density and tranquil, stagnant and inert pools. Pools which high density of stucking will cause fish to touch each other, so that will facilitate transmission (Hadiroseyani et al., 2006). *Trichodina* sp. included in the protozoan phylum, a parasite for fish (Anshary, 2008), whereby the structure and morphology of the ring dentikel a morphometric characters *Trichodina* sp. (Figure 1). *Trichodina* sp. parasites can cause stress and can cause damage to fish morphology. This parasite is quite pathogenic and can cause death to the host. High levels of *Trichodina* sp. and

supported by water conditions, will speed up breeding of *Trichodina* sp. Based on observations, the highest prediction of

Trichodina sp. was found on the surface of the body (scales and fins) compared to the gills as presented in Figure 2.



Figure 1. Structure and Morphology *Trichodina* sp.

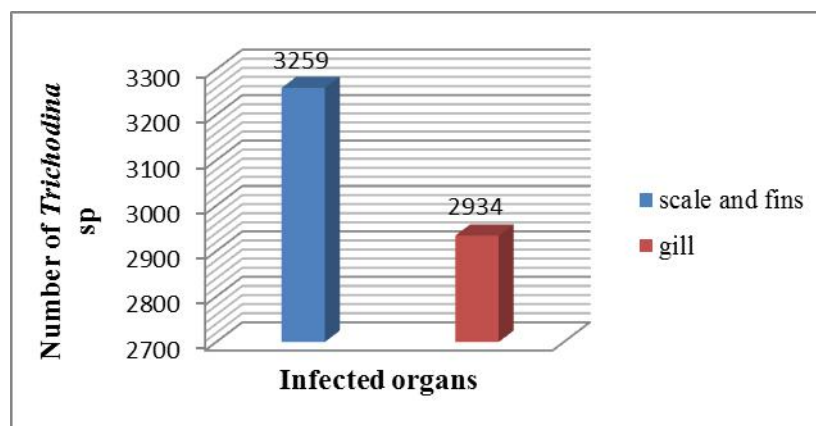


Figure 1. Comparison of Total *Trichodina* sp. Infect Organ Mujair

These parasitic attacks can cause damage to skin tissue, fins and gills. The high number of *Trichodina* sp. parasites found on the surface of the body, it caused on the surface of the body contains a lot of mucus, epithelial tissue and blood vessels which is a good place to live for the parasite. The body surface direct contact with the environment it can make parasite easier to stick than gills closed by overcullum. The high predilection of parasites on the surface of the body because body surface is greater than the gills.. This is consistent with Kennedy's (1975) statement in Alifuddin, et al. (2003) which states that the more the host's surface area the number of parasites will also increase.

4. CONCLUSION

The prevalence and degree of infection *Trichodina* sp. on mujair at Keramat Mengare Village, Bungah District, Gresik Regency, amounted to 91.87% and 54.81 (113 positive

tails were infected from 123 samples examined). The highest predicted *Trichodina* sp. results were found on the body surface (scales and fins) compared to the gills.

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