

RESEARCH RESULT

**HISTOPATHOLOGICAL CHANGES OF GOURAMI
(*Osphronemus gouramy*) GILL EXPOSED TO
CYPERMETHRIN INSECTICIDE**



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2022**

**HISTOPATHOLOGICAL CHANGES OF GOURAMI (*Osphronemus*
gouramy) GILL EXPOSED TO CYPERMETHRIN INSECTICIDE**

Research Proposal

As one of the requirements to gain the title of
Veterinary Bachelor
of
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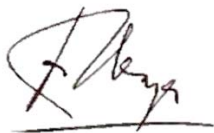
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DECLARATION

Hereby, I declare that in this thesis entitled:

**HISTOPATHOLOGICAL CHANGES OF GOURAMI (*Osphronemus
gouramy*) GILL EXPOSED TO CYPERMETHRIN INSECTICIDE**

there is no other work ever published to obtain a college degree in a certain college, and according to my knowledge there is also no work or opinion ever written or published by others, except those in writing referred to this paper and mentioned in the reference.

Surabaya, 27th June 28, 2022



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SUMMARY

TRISTANITA AYU SAMPRADHANA, research with the title “Histopathological Change of Gourami (*Osphronemus Gouramy*) Gill Exposed to Cypermethrin Insecticide” under the supervision of Dr. Thomas V. Widiyatno, drh., M.Si as the first supervisor and Prof. Dr. Mustofa Helmi Effendi, drh., DTAPH. as the co-supervisor.

This research aimed to determine the histopathological change of Gourami (*Osphronemus gouramy*) gill exposed to Cypermethrin insecticide. This study used 24 Gourami (*Osphronemus gourami*) as experimental animals. The selected rats are 3 months old with a body weight of 5-10 grams.

Twenty-four Gourami (*Osphronemus gouramy*) were divided into four treatment groups with six biological replicates in each group. All Gourami received exposure to Cypermethrin according to the four treatment groups; which are T₀ (control), T₁ (0.005 mg/L), T₂ (0.006 mg/L), and T₃ (0.007 mg/L).

Treatment was carried out for four days. At the end of the treatment period, the Gourami was euthanized, then the histopathological examination was performed. Gill samples are then made into histological slides using *Haematoxylin-Eosin* staining. Histologic slides were observed using a microscope and Optilab plus camera with 400x magnifications to determine the severity of the gill's damage. The data were analyzed using SPSS 23 with non-parametric Kruskal Wallis, followed by Mann-Whitney U method to see the significant value between treatments with a significant difference value of $t < 0.05$. The results showed a significant difference value between each group of secondary lamellar fusion, edema, and necrosis.

**Histopathological Change of Gourami (*Osphronemus Gouramy*) Gill Exposed to
Cypermethrin Insecticide**

Tristanita Ayu Sampradhana

ABSTRACT

This study aims to determine the histopathological change of Gourami (*Osphronemus gouramy*) gill exposed to Cypermethrin insecticide. Twenty-four Gourami (*Osphronemus gouramy*) were divided into four treatment groups with six biological replicates in each group. All Gourami received exposure to Cypermethrin according to the four treatment groups; which are T₀ (control), T₁ (0.005 mg/L), T₂ (0.006 mg/L), and T₃ (0.007 mg/L). The treatment was carried out for four days. At the end of the treatment period, the Gourami was euthanized, then the histopathological examination was performed. Microscopic observation of secondary lamellar fusion, edema, and necrosis shows a significant difference between each treatment group. The results of the sample assessment which were observed histopathologically were analyzed by non-parametric Kruskal Wallis, followed by Mann-Whitney U. This study concludes that there are differences between the damage level of Gourami's gill according to the given Cypermethrin dose. The damage to the gill gets worse as the Cypermethrin dose increases.

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This thesis is far from perfect. For that reason, the author is looking forward to suggestions and constructive criticism from all parties. Hopefully, the results outlined in this thesis can be useful.

Surabaya, 27th June, 2022

Author

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ABBREVIATION LIST

$C_{22}H_{19}Cl_2NO_3$	: Cypermethrin
EC	: Emulsifiable concentrate
ppm	: Part per million
pH	: Power of hydrogen
T ₀	: Control group
T ₁	: First treatment group
T ₂	: Second treatment group
T ₃	: Third treatment group