

THESIS

**EFFECT OF GREEN TEA (*Camellia sinensis*) ETHANOL EXTRACT
ADMINISTRATION ON THE NUMBER OF SPERMATOGENIC
CELLS OF MALE MICE (*Mus musculus*) EXPOSED TO
2,3,7,8-TETRACHLORODIBENZO-*P*-DIOXIN**



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UNIVERSITAS AIRLANGGA

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Thesis

Submitted in partial fulfillment of the requirement for the degree of
Bachelor of Veterinary Medicine

at

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By

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Approval of
Supervisor Comitee



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Supervisor



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Co-Supervisor

DECLARATION

I hereby declare that the thesis entitled

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There is no paperwork that has been filed to obtain a bachelor's degree at the university and also according to my knowledge, there is no paperwork or self opinions that ever written or published by others, except which is written in this paperwork that had mentioned in the bibliography.

Surabaya, 20 of December 2019



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Examination of Research Result Seminar

Date : 27 January 2020

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SUMMARY

Salsabilla Abani. This study with the title "Effect of green tea (*Camellia sinensis*) ethanol extract administration on the number of spermatogenic cells of male mice (*Mus musculus*) exposed to 2,3,7,8-tetracholorodibenzo-*p*-dioxin" under the guidance of Prof. Dr. Widjiati., Drh., M.si as supervisor and Dr. Erma Safitri., Drh., M.si as co-supervisor.

Cases of infertility in both humans and animals are the most often encountered cases in the field of reproduction. One of the reason is the entry of hazardous chemicals that can damage the work of the reproductive system and cause infertility. The chemicals which are classified as very toxic is 2,3,7,8-tetracholorodibenzo-*p*-dioxin (TCDD) where these materials are not produced commercially but as the result of industrial waste and combustion. TCDD is known to reduce spermatogenic cell counts, sperm quality and damage hormone systems, especially androgens. As a result of TCDD pollution, it can increase free radicals in the body and reduce antioxidant action. Green tea (*Camellia sinensis*) is known as a tea with high antioxidants. One of its main components is polyphenol, which contains flavonoids. In addition, the green also has catechin, where these compounds act as antioxidants by donating electrons or hydrogen and believed to reduce the effects of free radicals on the male reproductive system. Green tea is known can increase the number of spermatogenic cells and improving sperm quality. This study aims to determine whether green tea (*Camellia sinensis*) ethanol extract can maintain the number of spermatogenic cells of male mice (*Mus*

musculus) exposed to TCDD. The experimental animals used were 25 male mice with 11-12 weeks of age divided into 5 groups. C(-): Mice were not injected with TCDD and only given aquadest orally 0.1 ml per mice for 53 days. For C (+), T1, T2, and T3 groups the mice will be injected TCDD 0.14 μg which was dissolved in Tween80 intrapeitoneal 0.1 ml for single dose and the next day continued with the treatment. C(+): will be given Epigallocatechin gallate (EGCG) 1.2 mg / kg BW peroral 0.1 ml per mice for 53 days. T(1), T(2) and T(3) given green tea ethanol extract with a dose of 1 mg /kg BW ; 2 mg / kg BW and 4 mg / kg BW respectively orally 0.1 ml for 53 days. After 62 day the mice sacrificed for making histopathology slides using HE staining. The data was obtained by calculating the average number of spermatogenic cells in 5 seminiferous tubule in 400x magnification in microscope. The results ($P < 0.05$) showed the number of spermatogonium cells, primary spermatocytes and spermatids (mean \pm S.D) in group C(-) 169.72 ± 2.67 ; group C(+) 93.88 ± 3.12 ; T1 group 100.68 ± 1.91 ; T2 group 136.32 ± 2.33 and T3 group 166.84 ± 3.40 . This shows that there is no significant difference between groups T3 and C (-) which means that ethanol extract of green tea can maintain the number of spermatogenic cells of male mice exposed to TCDD.