PROTECTIVE EFFECTS OF *NIGELLA SATIVA* EXTRACT ON ETHANOL INDUCED HEPATIC TISSUE DAMAGE AND TNFα EXPRESSION.

( EXPERIMENTAL STUDY IN WISTAR RATS )

Thesis for

Master of Biomedical Science and medical specialist 1 program.

Prepared by :

Muath M.S. Nairat

POST GRADUATE PROGRAM
MASTER OF BIOMEDICAL SCIENCE
AND
MEDICAL SPECIALIST 1 PROGRAM
DIPONEGORO UNIVERSITY
SEMARANG
2012
APPROVAL SHEET

THESIS RESEARCH EXAM.

Protective Effects Of Nigella sativa Extract on Ethanol induced Hepatic Tissue Damage and TNF\textalpha Expression.

(Experimental Study In Wistar Rats)

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DECLARATION

I am hereby declare that this submission is my own work and that to the best of my knowledge and belief it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning.

Dr. Muath Nairat

Semarang, 20 January, 2012
ACKNOWLEDGMENT

First thanks goes to rector and medical faculty dean of Diponegoro University, I am deeply grateful to my supervisor Prof. Dr. dr. Tjahjono, sp.PA(k), FIAC and co-supervisor Dr. dr. Andrew Johan, M.si, for the time they spent to guide and read my research and for their constant concern, I also thankful for Dr. dr. Winarto, DMM, sp.MK, sp.M(k) the head of post-graduate program, Master of biomedical science for his continuous academic and scientific support, many thanks also goes for Dr. Siti Amarwati, sp.PA(k) the head of residency pathology anatomy study program for her help, advices and guidance in the pathology department faculty of medicine Diponegoro University, special thanks for Dr. dr. Indra Wijaya, sp.PA(k), Dr. Kasno sp.PA(k), Dr. Meira Dewi, M.si.med, sp.PA for their help in reading the slides.

For all examiners, thank you for the suggestions, ideas and comments, my gratitude and sincere thank also goes to all my colleges in residency program department of pathology anatomy faculty of medicine Diponegoro University.

Finally this piece of work dedicated to my beloved family, especially my father, mother whom they give everlasting moral and emotional support, encouragement and understanding in carrying out this project to such great degree of success.

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ABSTRAK


Tujuan: untuk mengidentifikasi dan menganalisis efek perlindungan ekstrak Nigella Sativa pada kerusakan hati yang diinduksi alcohol pada tikus wastr.

Metode: Penelitian ini eksperimental yang digunakan dengan randomized post-test only control group design. dalam 24 laki-laki wistar tikus dibagi menjadi empat kelompok setiap kelompok berisi 6 ekor, kelompok kontrol diberi etanol 8mg/kgBB setiap hari selama 8 minggu, kelompok 2, kelompok 3, diberikan Nigella Sativa ekstrak sebagai 0.5g/kgBB/hari, 1g/kgBB/hari, 1.5g/kgBB/hari masing-masing, menambahkan 8mg/kg/hari Etanol setelah satu jam untuk masing-masing 3 kelompok sehari selama 8 minggu, jaringan hati yang H&E bernoda dan diamati untuk perubahan sel hati, imunohistochemistry dilakukan untuk menghitung persentase warna coklat TNFα bernoda dan intensitas pewarnaan, kemudian mengklasifikasikan dengan Allred Score.

Hasil: ada yang parah, sedang, ringan dan normal jaringan hati untuk kontrol, group1, group2, group3 masing masing, perbedaan antara kelompok-kelompok dan antara masing-masing kelompok secara statistic signifikan (p=0.00), kecuali antara kelompok kontrol dan kelompok 1 (p=0.093) untuk kerusakan jaringan hati, ada yang 3Allred, 2Allred, 1Allred, 0Allred untuk kontrol, group1, group2, group3 masing masing, perbedaan antara kelompok-
kelompok dan antara semua kelompok secara statistic signifikan (p=0.00) untuk TNFα expresi.

**Kesimpulan:** Ekstrak Nigella Sativa menunjukkan pelindung anti-inflamasi efek, seperti mengurangi kerusakan dan perubahan ekspresi TNFα di hepatocyte yang diinduksi oleh etanol.

**Keywords:** Etanol, kerusakan jaringan hati, TNFα
ABSTRACT

Background: Alcohol intake causes fatty liver, liver tissue inflammation, and liver cirrhosis, Nigella sativa seeds had been reported with anti-inflammatory effect.

Objective: To identify and analyze the protective effect of Nigella sativa extract on alcohol induced liver damage in wistar rats.

Method: This experimental study used randomized post-test control group design in 24 male Wistar rats divided into four groups each group contain 6 rats, control group given ethanol 8mg/kgBW/day for 8 weeks, group1 , group 2, group 3, given Nigella sativa extract plus ethanol after one hour for 8 weeks as 0.5 g/kgBW/day, 1 g/kgBW/day, 1.5 g/kgBW/day respectively, ethanol dose 8mg/kgBW/day, the liver tissue were H&E stained and observed for liver cell changes, Immunohistochemistry was done to count the percentage of TNFα in Cytoplasm stained brown color and the intensity of the staining then its classify according to Allred Score.

Result: There was severe, moderate, mild and normal liver tissue for control, group1, group2, and group3 respectively the difference among groups and between each group were statistically significant (p=0.00), except between control group and group 1 (P=0.093) for the liver tissue damage, there was 3 Allred, 2 Allred, 1 Allred and 0 Allred for control, group1, group2, group3 respectively the difference among groups and between all groups was statistically significant (p=0.00) for TNFα expression.
**Conclusion:** Nigella sativa extract shows protective anti-inflammatory effect, as reducing the damage change and the TNFα expression in hepatocyte that induced by ethanol.

**Keywords:** ethanol, liver tissue damage, TNFα