

ABSTRACT

THE EFFECT OF KEBAR GRASS (*Biophytum Petersianum Klotzsch*) EXTRACT TOWARDS AMOUNT OF SPERMATOGENIC CELLS AND THE DIAMETER OF SEMINIFEROUS TUBULES IN MICE (*Mus musculus*) OF DIABETES MELLITUS MODEL

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Background: Diabetes is metabolic disease that can affect to the male reproductive system. Hyperglycemia conditions in diabetes mellitus will increase ROS production, causing oxidative stress. Oxidative stress causes microangiopathy, triggers apoptosis cells, interferes spermatogenesis that can affecting the number of spermatogenic cells and the diameter of seminiferous tubules. Kebar grass have flavonoid compounds and vitamin E which can be used to reduce ROS reaction and inhibit oxidative stress.

Objective : To prove that the kebar grass extract makes the number of spermatogenic cells more thick and the diameter of seminiferous tubules thicker in diabetes mellitus mice.

Methods: This research was True Experimental Design with Post Test Only Control Group Design. The research subject using 30 male mice were divided into five groups, diabetic mice were induced by Streptozotocin (STZ) (40 mg/kg). Negatif control group (K-) receiving CMC-Na for 32 days, positive control group (K+) receiving metformin 2mg/kg for 35 days, group P1, P2 and P3 receiving metformin 2mg/kg plus various doses of kebar grass extract (67,5mg/kg, 135mg/kg dan 270mg/kg) for 35 days. Mice were sacrificed and their testis taken, histological observations with HE staining and spermatogenic cells are counted and the diameter of seminiferous tubules.

Result : Statistical test shows that there are significant differences with the $p=0,005<0,05$ in spermatogenic cells, and $p=0,000<0,05$ in the seminiferous tubule diameter.

Conclusion: Kebar grass extract can increase the number of spermatogenic cells and diameter of the seminiferous tubules in diabetes mellitus mice.

Key word : Kebar grass, diabetes mellitus, spermatogenic cells, diameter of seminiferous tubules.

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DAFTAR ARTI LAMBANG, SINGKATAN DAN ISTILAH

ROS	: <i>Reactive Oxygen Species</i>
FSH	: <i>Folicle Stimulating Hormon</i>
DNA	: <i>Deoksiribonukleat Acid</i>
LH	: <i>Luteinizing Hormon</i>
ICSH	: <i>Intersitial Cell Stimulating Hormone</i>
GnRH	: <i>Gonadotropin Releasing Hormon</i>
DM	: <i>Diabetes Melitus</i>
IA	: <i>Islet Autoimmunity</i>
GAD	: <i>Glutamic Acid Decarboxylase</i>
LADA	: <i>Latent Autoimmune Diabetes In Adults</i>
IRS	: <i>Insulin Receptor Substrate</i>
GLUT	: <i>Glucose Transporter</i>
STZ	: <i>Streptozotocin</i>
AMP	: <i>Adenosine Monophosphate</i>
NO	: <i>Nitric Oxide</i>
RNS	: <i>Reactive Nitrogen Species</i>
TNF- α	: <i>Tumor Necrosis Factor-A</i>
HDL	: <i>High Density Lipoprotein</i>
Mdpl	: <i>Meter di atas permukaan laut</i>
AGEs	: <i>Advanced Glycation End-products</i>