

Volume 6, No. 1 (Supplement)

June 2011

ISSN 1823-2140

The National University  
with an INTERNATIONAL REACH



UNIVERSITI  
KEBANGSAAN  
MALAYSIA  
National University of Malaysia

# MEDICINE & Health

The Official Journal of The Faculty of Medicine UKM

## 7<sup>th</sup> Malaysia Indonesia Brunei Medical Sciences Conference "TOWARDS A HOLISTIC AND INTEGRATIVE APPROACH IN HEALTHCARE"



22<sup>nd</sup> - 24<sup>th</sup> July 2011

Equatorial Hotel, Bangi, Selangor,  
MALAYSIA

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## EFFECT OF PALM VITAMIN E ON THE OXIDATIVE STRESS IN THE PANCREAS OF STREPTOZOTOCIN-INDUCED DIABETIC RATS

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### **Background:**

Palm Vitamin E (PVE) is tocotrienol and tocopherol rich antioxidant that reduce the oxidative stress in many pathological conditions. Hyperglycemic state in diabetes can increase free radicals production and decrease the antioxidant defense mechanisms. This study was conducted to observe the effect of PVE against oxidative stress in the pancreas of streptozotocin-induced diabetic rats.

### **Materials and Methods:**

Forty rats were divided into four groups which were normal, normal rats given PVE (normal+PVE), diabetic, and diabetic rats given PVE (diabetic+PVE). Diabetes was induced by a single intravenous injection of streptozotocin at the dose of 45mg/kg and PVE was administered at the dose of 200mg/kg dose for 28 days consecutively through oral feeding.

### **Results:**

At the end of four weeks of study, diabetic rats exhibit significantly higher glucose levels as compared to normal rats. Diabetic rats with PVE supplementation has significant lower blood glucose than diabetic rats without PVE. Malondealdehyde and protein carbonyl levels of the pancreas were significantly reduced in PVE supplemented diabetic rats. Meanwhile, PVE supplementation to the diabetic rats significantly increased the total protein levels and glutathione and superoxide dismutase activities of the pancreas. The histological evaluation clearly showed that diabetic rats exhibit the significant destruction of beta cell of the Langerhans Islet. The presence of beta cells was observed diabetic rats supplemented with PVE.

### **Conclusion:**

In conclusion, this study proved that PVE may reduce the oxidative stress in hyperglycemic state and has protective effect on pancreas tissue in streptozotocin-induced diabetic rats.

### **Keywords:**

Palm vitamin E, tocotrienol-rich fraction, diabetes mellitus, oxidative stress, pancreas