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The effect of the gambier (*Uncaria gambier roxb*) extracts on liver function test and antioxidative stress in patients type-2 diabetes mellitus

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The present study investigated the effects of the gambier extract on liver function, glycaemic levels, and markers of oxidative stress in diabetic patients. The randomized clinical study consisted of two groups, ie. placebo (n=10) and gambier (n=6) group. After an overnight fasting, before consuming 100 gram white bread, it was collected vein blood samples for measuring function of liver, blood glucose (BGL), malondialdehyde (MDA) and superoxide dismutase (SOD) levels. Same procedures were done at fasting and 2-hour postprandial on the day-1 and day-14. The data obtained were analyzed by Student's t test with the level of significant $P=0.05$. In long-standing DM, the morphology and function of the liver are disturbed [Torbenson, 2006]. Clark and Diehl [2002] reported that in Type 2 diabetes (T2DM), impaired insulin action usually result in non-alcoholic fatty liver disease, including steatosis and steatohepatitis. Diabetes mellitus generally associated increasing of oxidative stress. Oxidative stress is thought to contribute to this dysfunction and the effects of antioxidants on the pathogenesis of diabetes [Umeno, 2016]. This occurs due to the release of superoxidative thereby altering electron transport in the mitochondria and increased activity of NADPH oxidase. Oxidative stress, through the production

of reactive oxygen species (ROS), has been proposed as the root cause underlying the development of type 2 diabetes mellitus (T2DM) and the progression of long-term diabetes complications [Wright et al., 2006]. The present study proved that gambier can decreased of SGOT levels (22.50 ± 11.54 ; 18.50 ± 1.28 U/L) and SGPT (21.83 ± 7.47 ; 20.17 ± 8.26 U/L) in gambier group from day-1 to day-14. In contrast, there was an increase in SGOT levels (16.00 ± 4.57 ; 20.20 ± 10.53 U/L) and SGPT (16.70 ± 8.26 ; 21.20 ± 13.13 U/L) in placebo group. Blood glucose concentration and serum oxidative stress markers were compared between the placebo group (given metformin only) and treatment group (gambier + metformin) in diabetic patients. The present study found significant increase of BGLs after consuming 100 gram bread in both groups. There was no changes in MDA levels for placebo group during the study observation, but there was significant decrease of MDA in gambier group on the day-14 (0.91 ± 0.10 ; 0.67 ± 0.04 , $P=0.001$). The level of SOD was increased in all measurements, except no changed on the day-1 of the placebo group. The present study proved that gambier extract confers protection against hyperglycemia-induced oxidative stress in liver function in diabetic patients.

Biography

Yunita Sari Pane has completed her Magister from Faculty of Pharmacy. She is continuing Doctoral program. She is a lecturer in Dept. Pharmacology & Therapeutic Universitas Sumatera Utara, North Sumatera, Indonesia. She has published 3 papers in reputed journals and has been doing some project research.

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