

Aqueous Leaves extract of *Andrographis paniculata* Nees as an Antidiabetic on MLDSTZ-induced Diabetic Rats*

Aulanni'am

Biochemistry Laboratory, Chemistry Department,
Faculty of Mathematics and Natural Sciences, Brawijaya Univeristy
aulani@ub.ac.id

ABSTRACT

Andrographis paniculata Nees is known in Indonesia as Sambiloto which is the name used in Jamu-Indonesian traditional medicine. Pre clinically evaluation consisting of animal studies antidiabetic effects have been shown for aqueous leaves extract Sambiloto on MLDSTZ -induced diabetic rats. The aim of this research are to know the prospect of Sambiloto for declining of blood glucose levels, IL-2 , TNF α and iNOS expression in pancreatic cells. The animal models comprised 3 groups of 2 months male rats (*Rattus norvegicus*, Wistar strain). Negative control (K1), are the group of normal rats, positive control (K2), are the group of rats with type 1 diabetes which induced by MLD-STZ (Multiple Low-Dose Streptozptocin), 5x15 mg/kgBW i.p., and K3 are the group of rats with 5 mL/day of sambiloto aqueous leaves extract administration for 1 week. Histological observe and measurement of blood glucose level doing in pre treatment, after MLD-STZ injection and after administration aqueous leaves extract of Sambiloto. All treatments are repeated three times. The pancreatic cells which stained by Hematoxylen-Eosin shows the repairing insulinitis after sambiloto treatment, followed by observation of insulinitis condition by immunohistochemical technique through cytokine pro inflammatory expression both of interleukin-2 , TNF- α and iNOS as free radicals indicator. These result provided that diabetic rats showed overproducing TNF α , IL-2 and iNOS. The sambiloto aqueous leaves extract have an ability to decrease blood glucose level and both of the expression of IL-2, TNF α , and iNOS in pancreatic cells. These sambiloto leaves exhibited far stronger antioxidant activity and associated with antidiabetic might be potential sources of potent natural antioxidants and beneficial chemopreventive agents. Finally it can be concluded that sambiloto aqueous leaves extract decrease the insulinitis degree and also repaired the beta cells, so it can be expected for decreasing blood glucose level and healing IDDM.

Key words: Sambiloto aqueous leaves extract , Diabetic rats, MLD-STZ, IL-2, TNF α , iNOS.

*Presented at IOCD International Symposium , Biology, Chemistry, Pharmacology and Clinical Studies of Asian Plants, Surabaya 9-11 April, 2007.