

Antihyperglycemic Effect of 1-Deoxynojirimycin Derived from Silkworm (*Bombyx mori* L.) in Streptozotocin-induced Diabetic Rat

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1-deoxynojirimycin from *Bombyx mori* L. was isolated by column chromatography using a variety of ion-exchange resins. The antihyperglycemic effect of 1-deoxynojirimycin derived from silkworm powder (*Bombyx mori* L.) was investigated in streptozotocin (STZ)-induced diabetic rat. The possibility of preventing the onset of diabetes and obesity using dietary supplements containing 1-deoxynojirimycin is of great potential interest. A white crystalline compound was isolated from 420 g of freeze-dried silkworm powder as the white crystals. That compound was identified as 1-deoxynojirimycin by ¹H and ¹³C-NMR and mass spectroscopy. The isolation yield was 0.3%. DNJ, and Acarbose as a positive control were fed to mice that have streptozotocin-induced diabetes mellitus for *in vivo* test. DNJ showed 47.1% of blood glucose-lowering effect from 4th day after feeding, while Acarbose showed 57.6% from 7th day after feeding. For the study of pharmacokinetics, 20mg of DNJ was injected to mouse and the concentration of DNJ in blood was monitored. The DNJ concentration in blood was shown to have the highest of 76 $\mu\text{g/mL}$ at 15 min after injection, and decreased to 30 $\mu\text{g/mL}$ at 30 min after injection.