Extraction Evaluation of Hypoglycaemic Property and Acute Toxicity Testing of Extracts from *Tinospora crispa* Stems

Ngampong Kongkathip[1], Suwanna Jnakana[1], Boonsong Kongkathip[1], Penchom Peungvicha[2], Pranee Chavalittumrong[3], Phongsak Phonsena[4], and Yupa Mongkolsook[5]

[1]Products and Organic Synthesis Research Unit, Department of Chemistry, Faculty of Science, Kasetsart University
[2]Department of Physiology, Faculty of Pharmacy, Mahidol University
[3]Medicinal Plants Research Institute, Department of Medical Science Ministry of Public Health
[4]Khao Hin Son Botanic Garden, National Park, Wildlife and Plant Conservation Division
[5]KAPI, Kasetsart University

The use of *Tinospora crispa* extracts as antipyretic has been reported and has been showed to induce cardiac contractility and hypoglycaemic activity. It was found that *T. crispa* extracts from various sources showed different cardiotonic effect, so it is crucial to extract and evaluate hypoglycaemic activity of *T. crispa* extracts from various sources together with acute toxicity testing.The stems of *T. crispa* collected in the central part (Supanburi and Kanchanaburi provinces), in the South part (Nakhonsithammarat and Phangnga provinces), in the North part (Phichit province),and the Northeastern part (Srisakate and Sakaeo provinces) were extracted with boiling water and with 70%ethanol/water by soxhlet extraction. Hypoglycaemic activity testing was done by OGTT (Oral Glucose Tolerance Test) method. It was found that the water extract except that of samples from Sakaeo province at dose of 0.5 g/kg caused a 13.7-22.7% reduction of plasma glucose levels in normal rats after 90 min oral feeding. Most especially water extracts samples from Supanburi, Phichit, and Srisakate provinces at dose of 0.5 g/kg caused a 13.9-15.6% reduction of plasma glucose levels in normal rats after 120 min.Whereas the 70%ethanol/water extracts of materials from Supanburi and Nakhonsithammarat provinces at dose of 0.5 g/kg significantly decreased plasma glucose levels in normal rats by 8.9-13.0% after 120 min. The HPLC (High Performance Liquid Chromatography) analysis of water extracts of *T. crispa* from Supanburi, Phichit, and Srisakate provinces showed similar chromatograms but different from that of water extract from Kanchanaburi,Nakhonsithammarat, Phangnga, and Sakaeo provinces. These results correspond with the hypoglycaemic activity testing. Acute toxicity testing showed that LD50 values of water extracts from various sources are about 20-24 g/kg. It was suggested that the water extract of *T. crispa* is highly safe.

Keywords: *Tinospora crispa*, Cardiac contractility, Hypoglycaemic, Acute toxicity
N. Kongkathip: fscinpk@ku.ac.th

http://www.lib.ku.ac.th/KUCONF/KC4205034.pdf : 6 July 2016