

Table. Platelet Aggregation Inhibition

	Adenosine	Water Extract	Hexane Extract	Chloroform Extract	Ethanol Extract	Methanol Extract
Inhibition (%)	68.6±4.3	72.7±3.3	40.1±5.6	44.7±2.7	43.5±6.6	68.8±6.7

Values are mean ± SE (n=8). Platelet counts was 1.5x10⁸ cells/mL

of 250mg/ml showed a potent inhibition effect toward platelet aggregation. Compared with other extracts, water extract exhibited the strongest inhibition as well as adenosine (50µM/ml) as a positive control.

In Addition to this, methanol extracts showed relatively similar inhibition pattern with adenosine. Finally, this initial finding has provided the evidence of *Phyllanthus niruri* L. action in platelet functions.

PRODUCTION OF ANTI-MADECASSOSIDE POLYCLONAL ANTIBODY AND ITS APPLICATION FOR QUALITY CONTROL OF *CENTELLA ASIATICA* (L.) URBAN

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Madecassoside is the major triterpenoid saponins derived from *Centella asiatica* (L.) Urban, a medicinal plant used in Ayurvedic medicine for centuries. Madecassoside possesses various biological activities, including antidepressant effect (1), burn wound healing and anti-inflammatory (2). In this study, we developed the immunoassay method for quantitative analysis of the major compounds in *C. asiatica*. A sensitive indirect competitive enzyme-linked immunosorbent assay (ELISA) was developed using polyclonal antibody against madecassoside. Madecassoside-bovine serum albumin conjugate was immunized to rabbits for producing polyclonal antibody. The results showed that the antibodies were specific for madecassoside and asiaticoside. The

range of the assay extends from 0.39 to 50 µg/ml. A good correlation between ELISA and HPLC methods was obtained when analysis of total triterpenoid saponins in the crude extracts of plant samples. In addition, the products containing *C. asiatica* in various preparations were determined triterpenoid saponins content by competitive ELISA. The developed ELISA method can be used for quality assessment of *C. asiatica* and their products.

References: (1) Liu, M. R., Han, T., Chen, Y., Qin, L. P., Zheng, H. C. and Rui, Y. C. (2004). Journal of Chinese Integrative Medicine, 2 (6), 440-444. (2) Li, H., Gong, X., Zhang, L., Zhang, Z., Luo, F., and Zhou, Q. (2009). Phytomedicine, 16 (6-7), 538-546.

METABOLIC EFFECTS OF *CITRUS GRANDIS* WHOLE FRUITS EXTRACT IN THE STREPTOZOTOCIN-INDUCED DIABETIC RATS

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Citrus grandis fruits are used as a folk remedy in Korea for hangovers, peel of the fruit in Taiwan for the treatment of stomach ache, in Cameroon traditional

medicine for treatment of hypertension, in Chinese medicine as antitussive, expectorant and antiasthmatic. Dried *Citrus* peels, known as Chenpi are used in

east traditional medicine. It is reported to be popular in the diabetes patients with exuberant heat due to yin deficiency. Health beneficial effects of the dried extract of whole fruits of *C. grandis* (L.) Osbeck var. *tomentosa* hort. containing 19% naringin were studied in neonatal streptozotocin (nSTZ)-induced NIDDM rats. The effects of citrus extract and the reference compound sitagliptin were followed on the pancreas histology and on the serum lipid, glucose and insulin levels. The nSTZ treatment led to increased glucose and decreased insulin levels in parallel with marked

pancreatic damage. These effects were not observed at least in similar manner in the nSTZ rats given also the citrus extract for several weeks. Beneficial effects of the citrus extract were found on the insulin, glucose and lipid levels as well as on improved pancreatic morphology. The promoting effects seemed to be dependent on an optimal dose since in some measurements they were found especially at certain extract amounts. It is suggested that the treatment of nSTZ diabetic rats with the citrus extract is associated with specific metabolic improvements.

GASTROPROTECTIVE EFFECT OF FENNEL “*FOENICULUM VULGARE*” A COMMONLY USED SPICE IN ARAB TRADITIONAL MEDICINE

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Spices are a group of esoteric food adjuncts that have been used for thousands of years to enhance the sensory quality of foods and as preservatives. Much health benefit attributes of these common food adjuncts in animal studies include digestive stimulant action, antioxidant, anti-inflammatory and antihepatotoxic properties. Among these, the gastronomic and antioxidant properties of a few specific spices have far-reaching nutraceutical value. The present study was carried out to evaluate antiulcerogenic property of Fennel “*Foeniculum vulgare*” Mill. (Fam.: Umbelliferae) in Wistar albino rats. An aqueous suspension of fennel (a common dosage form used in folk medicine practice). The suspension was used in two doses (250 and 500 mg/kg body weight, orally) in all experiments except in Shay rat model. Gastric acid secretion studies were undertaken using pylorus ligated (Shay) rats. Gastric lesions in the rats were induced by noxious chemicals including ethanol, strong alkalis and indomethacin. The levels of gastric wall mucus (GWM), nonprotein sulfhydryls (NP-SH) and malondialdehyde (MDA) were also measured in the glandular stomach

of rats following ethanol administration. The gastric tissue was also examined histologically. In pylorus-ligated Shay rats, the suspension of fennel significantly reduced the basal gastric acid secretion, titratable acid and ruminal ulceration (64%, 39% and 100%), respectively. The suspension significantly ($P < 0.001$, $P < 0.01$ and $P < 0.01$) attenuated gastric ulceration induced by necrotizing agents (80% ethanol, 0.2 mol/L NaOH, 25% NaCl) respectively and indomethacin was found to be ($P < 0.01$). The cytoprotective and antiulcer effect was further confirmed histologically. Furthermore, the suspension significantly replenished the ethanol-induced depleted levels of GWM ($P < 0.001$), NP-SH ($P < 0.05$) and diminished ($P < 0.01$) (MDA) concentration of the rats' stomach. The data obtained confirmed the use of fennel suspension in various gastric ailments including stomach ulcers. Fennel reported to contains bio-active phytochemical substances, which might increase endogenous prostaglandins and mucus synthesis and exert its gastroprotective activity through its antioxidant, antisecretory and cytoprotective properties in rats.