

Sugar Content of Honey from Wild and Kept Honeybees

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ABSTRACT

The purpose of this study was to analyze major sugar components of honey by high performance liquid chromatography (HPLC) method. Results, compared with data obtained from similar studies in Poland, the United States (U. S.), and Canada, showed no obvious discrepancies.

Results indicated that the fructose content in honey collected from kept honeybees was 38%; in winter honey, 36% and from wild honeybees, 45%. The glucose content in winter honey was 27%; in kept honey, 33%; and wild honey, 31%. Thus, the fructose-to-glucose ratios are between 1.1-1.2 in kept honey and 1.4-1.6 in wild honey. Only a small amount of sucrose was detectable in some samples, while the content of maltose in all samples was around 4.2%. The total sugar content in winter honey was 67%; honey produced in other seasons contained 75%, with wild honey up to 80%.

Key words: Sugars, Honey, Honeybees, HPLC method.

Effect of L-Glutamic Acid on Acid Secretion and Immunohistochemical Localization of Glutamatergic Neurons in the Rat Stomach

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Glutamatergic neurons in the rat stomach were localized immunohistochemically using antibodies against L-glutamate (L-Glu) as well as glutamate synthesizing enzyme, glutaminase (GLNase). Myenteric ganglia and nerve bundles in the circular muscle and the longitudinal muscle were found to contain GLU- and GLNase-positive nerve fibers, while submucosa and mucosa were devoid of glutamatergic innervation. The distribution of glutamatergic neurons and their processes in both myenteric ganglia and circular muscle is heterogeneous within the stomach. The effect of L-Glu on gastric acid secretion was investigated on an everted preparation of isolated rat stomach. L-Glu at 10^{-7} and 10^{-8} M alone had no effect on acid secretion. It was found that the oxotremorine-, histamine-, or gastrin-stimulated acid secretion was markedly reduced by L-Glu at 10^{-8} M, whereas L-Glu had little effect on the acid secretion stimulated by dimethylphenylpiperazinium (DMPP) at this concentration. However, at higher concentration, e.g., 10^{-7} M, L-Glu also markedly reduced DMPP-induced acid secretion. Among L-Glu receptor agonists tested, quisqualic acid (QA) is most potent, followed by kainic acid (KA) and N-methyl-D-aspartic acid (NMDA) in inhibiting oxotremorine-stimulated acid secretion. Furthermore, this inhibitory effect of L-Glu on oxotremorine-stimulated acid secretion is blocked by 6-cyano-7-nitroquinoxaline-2, 3-dione (CNQX), a specific non-NMDA receptor antagonist.

All these results suggest that glutamatergic neurons are involved in the modulation of gastric acid secretion via ionotropic QA/KA receptors, probably through openings of Ca^{2+} channels. © 1994 Wiley-Liss, Inc.

Key words: L-glutamic acid, glutaminase, cholinergic neurons, histamine, gastric acid secretion

Pharmacological Effects of Butylidenephthalide

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The pharmacological effects of synthetic butylidenephthalide (Bdph), the most potent antispasmodic agent found in the neutral oil of *Ligusticum wallichii* Franch., were examined in this study. *In vivo*, Bdph exerted a significant anti-hypertensive effect in anaesthetized renal hypertensive rats at a dose of 30 mg/kg (i.v. or i.p., or 60 mg/kg (p.o.). Bdph antagonized noradrenaline (NA) induced increases in blood pressure in anaesthetized normotensive rats. IN addition, Bdph prevented the pituitrin-induced T-wave lowering of the ECG in anaesthetized rats. It also dose-dependently decreased coronary arterial pressure in dogs. It is concluded that Bdph dilates coronary vessels. *In vitro*, Bdph non-competitively antagonized adrenaline-induced contraction in isolated rabbit aortic strips. It also significantly antagonized the Na-induced maximum decrease in perfusion rate of isolated rabbit ears. However, the vasodilator effect may cause a heat loss because Bdph significantly lowered the rectal temperature of rats at ambient temperature of 20 °C, but not at 30 °C. Bdph might be a useful coronary dilator and antihypertensive drug.

Key words: *Ligusticum wallichii* Franch.; butylidenephthalide; antispasmodic; antihypertensive; coronary dilator.

Segregation Analysis of Smoking-Associated Malignancies: Evidence for Mendelian Inheritance

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Tobacco consumption is an established risk factor for cancer at a number of sites: oral cavity, esophagus, nasopharynx, lung, larynx, pancreas, bladder, kidney, and uterine cervix. These sites also demonstrate familial aggregation. To determine if evidence exists for a major gene controlling susceptibility to smoking-associated cancers, maximum likelihood segregation analyses were performed on 337 families (3,276 individuals) ascertained through a deceased lung cancer proband. Models were fitted that allowed for personal tobacco use and variable age of onset. The hypotheses of environmental transmission and no major gene were rejected ($P < 0.005$), but none of the Mendelian models could be distinguished. According to Akaike's Information Criterion, Mendelian dominant inheritance of an allele that produces cancer at an earlier age of onset provided the best fit to the data. The model suggests that 62% of the population are susceptible, and that the mean age-of-onset differs for men and women: at the mean-level of tobacco exposure, female gene carriers are affected, on average, 24 years earlier than non-carriers (77 vs. 101), while in males the difference was 20 years (71 vs. 91). These findings extend our earlier observations on the genetic epidemiology of lung cancer and suggest that Mendelian factors may influence the risk of cancers that are known to be smoking associated.

Key Words: cancer, tobacco, lung cancer, genetics

Effect of Peritoneal Fluid and Serum from Patients with Endometriosis on Mouse Embryo In Vitro Development

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ABSTRACT

Background. The adverse effects on early embryo development as caused by peritoneal fluid exudate and serum from endometriosis patients have been shown, but the underlying mechanism and clinical significance remain unknown.

Methods. Peritoneal fluid (PF) and serum (S) from patients with minimal to mild endometriosis (Group A, n=12), moderate to severe endometriosis (Group B, n=6), and others including tubal ligation and uterine myoma (Group C, controls n=6) were obtained during laparoscopy. Two-cell mouse embryos were cultured at 37°C in 5% CO₂, 95% air with supplementation of 10%PF+1%BSA, 10%S and 10% S+10%PF in HTF medium. The percentage of progression to the blastocyst stage at 72 and 96 hours was observed and compared among the three groups.

Results. Serum and peritoneal fluid from infertile patients with moderate to severe endometriosis appeared to be embryotoxic to the in vitro development of two-cell mouse embryos, but no significant differences were found between minimal to mild endometriosis and group C patients.

Conclusions. These data suggest that the production of embryotoxic factor(s) is related to the clinical stage, and may be derived from endometriotic implants. The correlation of the embryotoxic effect of the peritoneal fluid with that of the serum indicates that embryotoxic factor(s) may enter the systemic circulation and impede early embryogenesis in the reproductive tract. The nature and mechanism of this result demand further study.

Key words: embryotoxic factor, endometriosis, in vitro culture

The immunomodulative effects of Sheng-Hua-Tang in mice

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ABSTRACT

SUMMARY The effects of Sheng-Hua-Tang, one of the Chinese medicinal prescription often used in obstetrics, on humoral immune responses and cellular immune response were studied in mice. Both of the water and 15% ethanol extracts of Sheng-Hua-Tang were found to have significantly (1) enhanced the antibody titer of ICR mice serum of peripheral blood against sheep red blood cell, (2) increased the number of plasma cells which came from B-cells of BALB/c mice spleen cells after a challenge with sheep red blood cell and (3) elevated the ratio of total T-cell but decreased those of the T_s cell of BALB/c mice. The values of Th/T_s were also increased.

Key words: Sheng-Hua-Tang, Immunomodulative effects

Postpartum uterine involution effects of Chinese medicinal prescription Sheng Hua Tang

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ABSTRACT

Sheng Hua Tang (SHT), is one of the most popular prescriptions of traditional Chinese medicine in obstetrics. It was studied in the primiparous women on the postpartum uterine involution. We compared with fundal symphysis distance (FSD) and uterine volume during the first week of puerperal period. The difference of FSD (sm) between the first and the fourth day (3.56 ± 0.30 vs 2.58 ± 0.42 , $P < 0.05$) the first and the seventh day (5.86 ± 0.26 vs 4.50 ± 0.43 , $P < 0.05$), and the uterine volume (cm^3) of the seventh day of postpartum (102.31 ± 3.01 vs 121.59 ± 3.49 , $P < 0.005$) and volume decrease (cm^3) between 1st and 7th day (129.43 ± 13.15 vs 108.02 ± 13.33 , $P < 0.005$) all showed significant difference in the study from the control groups. The study results suggest that SHT might ameliorate uterine contraction and involution.

Key words: Sheng Hua Tang, uterine involution

Protective and Therapeutic Effects of Ban-zhi-lian on Hepatotoxin-induced Liver Injuries

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Abstract: The hepatoprotective effect of Ban-zhi-lian was investigated in three kinds of experimental models. The animals were treated with Ban-zhi-lian (300 mg/kg, p.o.) at 2, 4, and 10 hours after carbon tetrachloride (32 μ l/kg i.p.), acetaminophen (600 mg/kg, i.p.), and β -D-galactosamine (188 mg/kg, i.p.) administration. Significant protective effects from these hepatotoxins were expressed. This protection was evidenced by comparing the serum glutamate oxaloacetate transaminase (SGOT), serum glutamate pyruvate transaminase (SGPT), and histopathologic examination in animals treated and untreated with Ban-zhi-lian. Serum enzyme activities were significantly lower in Ban-zhi-lian-treated groups. In the histopathologic observation, liver damage induced by three hepatotoxins was markedly improved in Ban-zhi-lian treated animals. These results demonstrated that Ban-zhi-lian has a protective effect against experimental liver damage induced by various hepatotoxins.

Hepatoprotective Effects of Taiwan Folk Medicine: *Wedelia chinensis* on Three Hepatotoxin-induced Hepatotoxicity

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ABSTRACT

The hepatoprotective effects of a Taiwanese crude herb, Hwang-hua-mih-tsay (*Wedelia chinensis* (Osbeck) Merr.), were investigated. Acute hepatitis was induced by three hepatotoxins: carbon tetrachloride and acetaminophen in mice, and D(+)-galactosamine in rats. After treatment with *W. chinensis* (300 mg/kg, p.o.) at 2, 6 and 10 hours, a reduction in the elevation of serum glutamate oxaloacetic transaminase (SGOT) and glutamate pyruvic transaminase (SGPT) levels was observed at 24 hrs after hepatotoxins were administered. These serological observations were confirmed by histopathological examinations. A microscopic examination of the liver showed a marked improvement in groups receiving *W. chinensis*. In order to further confirm the hepatoprotective effect of *W. chinensis*, all pharmacological and histopathological effects were compared with *Bupearum chinense* DC. (family Umbelliferae), a well documented antihepatotoxicity herb. It was concluded that *W. chinensis* has a definite hepatoprotective effect against liver injuries.

Hepatoprotective Effects of Taiwan Folk Medicine: *Ixeris chinensis* (Thunb.) Nak. on Experimental Liver Injuries

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Abstract: The hepatoprotective effects of *Ixeris chinensis* (Thunb.) Nak. were studied on acute hepatitis induced in mice by a single dose of carbon tetrachloride (31.25 μ l/kg, ip) or acetaminophen (600 mg/kg, ip), and in rats by a single dose of β -D-galactosamine (188 mg/kg, ip). Hepatoprotective activity was monitored by estimating the serum transaminases (SGOT and SGPT) levels and histopathological changes in the livers of experimental animals. The *Ixeris chinensis* (Thunb.) Nak. extracts significantly inhibited the acute elevation of serum transaminases. Histopathologically, the crude *I. chinensis* extract significantly ameliorated hepatotoxin-induced histopathological changes in the livers of experimental animals. All pharmacological and histopathological effects of *Ixeris chinensis* (Thunb.) Nak. were compared with *Bupleurum chinense* DC., which has been previously reported as a treatment herb for hepatitis.

Anti-inflammatory and hepatoprotective activity of saikosaponin-f and the root extract of *Bupleurum kaoi*

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Summary. A mixture of *B. kaoi* saponins, containing saikosaponin-a, -d and -f, showed anti-inflammatory effect against carrageenan-induced plantar oedema in the rat. The crude saponin mixture and saikosaponin-f exhibited a dose-dependent inhibiting effect. Antihepatotoxic activity was investigated in rats intoxicated with β -D-galactosamine. Except for saikosaponin-f, administration of the other compounds significantly reduced the sGOT and sGPT levels. Pathological changes in rat hepatocytes such as inflammatory infiltration around the portal area, focal necrosis in the liver parenchyma, and hyaline degeneration, have been improved in all drugs treated groups.

Key words: *Bupleurum kaoi*; saikosaponin-f; saponins; anti-inflammatory activity; hepatoprotective activity.

Hepatoprotective Effects of Taiwan Folk Medicine: *Alternanthera sessilis* on Liver Damage Induced by Various Hepatotoxins

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The hepatoprotective effects of the Taiwanese herb 'Horngtyan-wu' (*Alternanthera sessilis* (L.) DC.) were investigated in three kinds of experimental animal model. Acute hepatitis was induced by various chemicals such as carbon tetrachloride (31.25 μ L/kg, i.p.) or acetaminophen (paracetamol; 600 mg/kg, i.p.) in mice and D(+)-galactosamine (188 mg/kg, i.p.) in rats. When treated with *A. sessilis* (300 mg/kg, p.o.) at 2, 6 and 10h, a reduction in elevation of serum glutamate oxaloacetic transaminase (SGOT) and glutamate pyruvic transaminase (SGPT) levels could be observed at 24 h after administration of the three hepatotoxins. These serological observations were also confirmed by histopathological examinations including centriobular necrosis, eosinophilic bodies, pyknotic nuclei, microvesicular degeneration of hepatocytes and others. The liver microscopic examination showed a noted improvement in groups receiving *A. sessilis*. All pharmacological and histopathological effects were compared with observations using the hepatoprotective Chinese herb, *Bupleurum chinense* (Family Umbelliferae). It was confirmed that *A. sessilis* has hepatoprotective effects against liver injuries induced by hepatotoxins with different mechanisms.

Key words: *Alternanthera sessilis*; *Bupleurum chinense*; hepatoprotective; paracetamol; acetaminophen; galactosamine; carbon tetrachloride.

Determination of higenamine in plasma and urine by high-performance liquid chromatography with electrochemical detection

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ABSTRACT

A method for the determination of higenamine in plasma and urine based on high-performance liquid chromatography (HPLC) with electrochemical detection was developed. The plasma or urine sample was treated by adsorption with acidic alumina and then higenamine was released by acid treatment. HPLC was performed on an ODS column with a mobile phase of acetonitrile-0.1% phosphoric and (9:91) and an electrochemical detector at an oxidation potential of 0.75 V. The lower limits of the assay for higenamine in plasma and urine were 2.645 and 10.58 ng/ml, respectively. The recoveries of higenamine after alumina treatment in rabbit plasma and urine were ca. 77.5 and 84.4%, respectively. Intra- and inter-day precision and accuracy reported as coefficients of variation in plasma and urine were less than 7%. The application of the assay was demonstrated successfully by the determination of the concentration of higenamine in rabbit plasma and urine samples after doses of higenamine hydrochloride at 20 mg/kg intravenously and 50 mg/kg orally.

Studies on the Rigid Benzylisoquinoline Analogues on Adrenergic Receptors

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ABSTRACT

In order to explore the orientation of the benzyl group within the benzylisoquinoline molecule upon interaction with the adrenergic receptors, synthesis of the rigid analogs of 2, 3, 10, 11-tetrahydroxytetrahydroprotoberberine⁽³⁾ and 1, 2, 9, 10-tetrahydroxynoraporphine⁽⁴⁾ were undertaken and pharmacological evaluation was performed on adrenergic β -receptors.

Condensation of phenylethylamines and phenyl acyl chlorides, followed by Bischler-Napieralski cyclization and reduction gave the benzylisoquinolines. Preparation of tetrahydroprotoberberine was accomplished by Mannich condensation of benzylisoquinoline with formalin. Finally, the synthesis of noraporphine involved nitration of benzylisoquinoline followed by reduction, diazotization and Pschorr cyclization. Cleavage of protective groups yielded the target compounds, tetrahydropapaveroline⁽²⁾, compounds 3 and 4.

Compounds 2, 3 and 4 were tested with left atrial and tracheal preparations of G. Pigs. The results indicated that compound 2 is ten times more potent than that of higenamine⁽¹⁾ in both adrenergic β_1 and β_2 agonist activities. However, compound 3 showed no β -agonist activity and compound 4 showed β_2 activity only at high concentrations.

Key words: Isoquinoline analogs; Chemical synthesis; β -Adrenergic activities.

Cross protection against *Taenia taeniaeformis* in rats vaccinated with non-viable oncospheres of Asian *Taenia* or *T. saginata*

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ABSTRACT

It was determined to examine whether rats injected with non-viable oncospheres of Asian *Taenia* or *Taenia saginata* became resistant to challenge infection with eggs of *Taenia taeniaeformis*, since (a) metacestodes of Asian *Taenia* and *T. taeniaeformis* develop in the liver of pigs and rats, respectively, and (b) Asian *Taenia* and *T. saginata* have human origins. Rats injected intravenously or subcutaneously with complete Freud's adjuvant with non-viable oncospheres of Asian *Taenia* showed statistically significant resistance to challenge infection with eggs of *T. taeniaeformis*, whereas those injected with non-viable oncospheres of *T. saginata* did not show any resistance.

Experimental infection of an isolate of *Taenia solium* from Hainan in domestic animals

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ABSTRACT

The present study was designed to determine the susceptibility, of domestic animals to an isolate of *Taenia solium* from Hainan Province, People's Republic of China. A total of 162 cysticerci were recovered from two pigs and 21 from two dogs after experimental inoculation. Cats, goats and a calf were not susceptible to *T. solium*. Cysticerci were recovered mainly from muscles of the pigs and all were alive. The remainder were in the liver and only one was alive. In the dog, all cysticerci were recovered from the muscles and all were alive.

Taenia Saginata Taiwanensis: A New Subspecies of Taenia Saginata in Asia

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ABSTRACT

The epidemiological pattern of taeniasias in Asia indicated the existence of a form of human *Taenia* which is distinguishable from *T. saginata* and *T. solium*. People eat meat and/or viscera of pigs and acquire infections of *T. saginata*-like tapeworms. Moreover, cysticercosis is more frequently found in pigs than cattle. In order to elucidate the taxonomic status of Asian *Taenia*, epidemiological surveys, experimental infection studies, and biomorphological investigations have been conducted in the past eight years. The results indicate that Asian *Taenia* can be distinguished from the classical *T. saginata* in six aspects: (1) Asian *Taenia* has a special epidemiological pattern - people often eat more meat and/or viscera of pigs than those of cattle and usually get *T. saginata*-like tapeworm infections. (2) The wild boar and domestic pig in Taiwan as well as the domestic pig in Korea have been found to be the natural intermediate hosts of Asian *Taenia*. Moreover, the pig has been found to be the most favorable experimental intermediate host of this parasite. (3) The cysticerci of Asian *Taenia* is situated mainly in the liver of the intermediate host while those of classical *T. saginata* most often distribute in the muscles throughout the body. (4) The adult worm of Asian *Taenia* is shorter in length and has less number of segments than the classical one. (5) The cysticercus of Asian *Taenia* has a shorter developmental period (4 weeks) than that of classical *T. saginata* (8-10 weeks). (6) The cysticerci of Asian *Taenia* are relatively small in size and their scolex often have two rows of hooklets while that classical *T. saginata* cysticerci are usually unarmed. In contrast to these distinguishing characteristics, Asian *Taenia* and classical *T. saginata* are similar in five aspects: (1) A rostellum can be observed on the scolex of both Asian *Taenia* and classical *T. saginata* in both adult and larval stages. (2) Uterine branches, uterine buds and uterine twigs as well as posterior tubercles can be demonstrated similar in number and feature in the gravid proglottides of both Asian *Taenia* and classical *T. saginata*. (3) Pig and cattle are intermediate hosts of both Asian *Taenia* and classical *T. saginata*. (4) The adult worms of both Asian *Taenia* and classical *T. saginata* are more than 400 in number and distribute on the dorsal side of the proglottides except behind the vitellaria. New genetic evidence supports the earlier conclusions that the Asian *Taenia* is a distinct entity but closely related to *T. saginata* and

suggest its taxonomic classification as a subspecies of *T. saginata taiwanensis* is more appropriate than formal designation as a new species.

我國護理倫理規範之研擬

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摘要

本研究係用自行設計的「護理倫理規範」之結構式問卷，探討醫師、護理人員和病人對護理倫理規範重要性之看法。本研究對象為衛生署評鑑合格的醫學中心、區域醫院和地區教學醫院的醫師、護理人員和病人，以隨機取樣方式各抽出一半的醫院數，計有 56 家為測試醫院，其中 7 家拒絕接受調查，因此實際有 49 家醫院接受測試。共發出問卷 3970 份，其中護理人員 1690 份，醫師 760 份，病人 1520 份，有效回數率為 87.4%。研究結果如下：

1. 醫護人員和病人都認為「遇個案情況危急時，應視情況給予緊急救護處理，並立即聯絡醫師」是最重要的護理倫理規範。

2. 護理人員對 38 項護理倫理規範重要性之看法，平均值都在 4.10 以上，表示肯定其重要性。醫師之看法中有 35 項平均值在 4.04 以上，只有兩項平均值在 4.0 以下，其分別為 3.99 和 3.83，也都接近重要的程度。病人之看法中有 35 項之平均值在 4.10 以上，有三項之平均值在 4.0 以下，分別為 3.93、3.92 和 3.76，此三項也都接近重要的程度。

3. 綜合醫護人員和病人三者對護理倫理規範重要性之看法中，有 37 項之平均值在 4.012 以上，只有一項為 3.989，也接近重要的程度。同時三者對 38 項的護理倫理規範重要性看法上差異很小，因此，此護理倫理規範內容，應可發展為我國護理倫理規範。

關鍵詞：醫護人員、病人、護理倫理規範。

MEDLINE 光碟資料庫利用指導課程內容的設計與實施

藍以樂

台北醫學院圖書館組員

摘 要

本文係以台北醫學院圖書館於今年三至七月所實施的 MEDLINE 光碟資料庫，利用指導課程加以介紹，包括訓練課程的由來及需求、課程的指導者、課程的設計、授課內容描述、授課大綱、課程實施情形的統計及分析、學習成果的擴散、國內外相關圖書館實施情形，及建議未來理想的實施方式等。光碟資料庫的利用指導課程，是圖書館長期性的推廣活動。