

Propolis

914/04 QIKANG ZHANG; JINGJING ZHOU; ZHENHONG WU; ZHONGMIN FU; XIAOQING MIAO
[Study on the anti-tumour effect of “Shen Feng” J9311 propolis capsule]. Apiculture of China (2003) **54**
(5) 4-6 [Ch, en, Bj] Apitherapy Inst., Fujian Agriculture and forestry Univ., Fujian, China.
For S180 tumours, a dose of 0.6-4.8g propolis/kg was found to be effective for inhibition; for H22 tumours,
rate of inhibition was quite similar at doses of 0.8, 1.6 and 3.2g/kg
[Author]

941/05 ASO, K; KANNO, S; TADANO, T; SATOH, S; ISHIKAWA, M **Inhibitory effect of propolis on the growth of human leukaemia U937.** Biological & Pharmaceutical Bulletin (2004) **27** (5) 727-730 [En, wf] Dept of Pharmacology and Toxicology, Cancer Research Inst., Tohoku Pharmaceutical Univ., Sendai 981-8558, Japan.

Tests showed that propolis strongly inhibited the growth of human histolytic lymphoma U937 cells and macromolecular synthesis in a dose- and time- dependent manner. Propolis at 0.015-0.5 µl/ml showed antitumour activity with an IC50 of 0.18 µl/ml for 3 d. It also inhibits DNA, RNA and protein synthesis with an IC50 of 0.08, 0.17 and 4.3 µl/ml, respectively. These results suggest that the antitumour activity of propolis occurs through the induction of apoptosis. Propolis may be useful as a cancer chemopreventive and chemotherapeutic agent.

945/05 BLONSKA, M; BRONIKOWSKA, J; PIETSZ, G; CZUBA, Z P; SCHELLER, S; KROL, W **Effects of ethanol extract of propolis (EEP) and its flavones on inducible gene expression in J774A.1 macrophages.** Journal of ethnopharmacology (2004) **91** (1) 25-30 [En, wf] Dept of Microbiology and Immunology, Medical Univ. of Silesia, ul. Jordana 19, Zabrze-Rrokitnica 41-808, Poland.

The results of this study indicate that ethanol extract of propolis exerts an inhibitory effect on the interleukin-I-beta and inducible nitric oxide synthase gene expression in lipopolysaccharide-induced J774A.1 macrophages at the transcriptional level. Tested flavone derivatives (chrysin, galangin, kaempferol and quercetin) were shown to contribute to the anti-inflammatory activity of propolis.

950/05 CHEN CHIANAN; WU CHIALI; SHY HORNGSHING; LIN JENKUN **Cytotoxic prenylflavanones from Taiwanese propolis.** Journal of Natural Products (2003) **66** (4) 503-506 [En, X] Graduate Inst. Of Biochemistry and Molecular Biology, College of Medicine, National Taiwan Univ., No. 1, Section 1, Jen-ai Rd, Taipei 100, Taiwan.

Two new prenylflavanones, propolin A (2) and propolin B (3), were isolated and characterized from Taiwanese propolis. Both compounds were found to have cytotoxic properties against three cancer cell lines. DNA content analyses and DNA fragmentation indicated that propolin A (2) efficiently induced apoptosis in cancer cell lines, but had no effect on the cell cycle programme. Furthermore, both propolin A (2) and B (3) are potential antioxidant agents and show strong scavenging effects against most types of free radicals.

953/05 COHEN, H A; VARSANO, I; KAHAN, E; SARRELL, E M; UZIEL, Y **Effectiveness of an herbal preparation containing echinacea, propolis, and vitamin C in preventing respiratory tract infections in children: a randomized, double-blind, placebo-controlled, multicenter study.** Archives of paediatrics & Adolescent Medicine (2004) **158** (3) 217-221 [En, wf] Paediatric and Adolescent Ambulatory Community Clinic, Hahistadrut 23, Petach Tikva 56000, Israel.

The herbal preparation, Chizukit, contained (per ml) 50mg Echinacea, 50mg propolis and 10mg vitamin C; 215 children aged 1-5 years were treated twice daily for 12 weeks with Chizukit and 215 with placebo. In the Chizukit group there was a significant reduction in the no. illness episodes and total no. illness days; no. episodes/child and episode duration; and no. days with fever per child. Adverse reactions were rare, mild and transient. It is concluded that the product is effective in reducing the incidence of respiratory tract infections.

305/05 AKAO, Y; MARUYAMA, H; MATSUMOTO, K; OHGUCHI, K; NISHIZAWA, K; SAKAMOTO, t; ARAKI, Y; MISHIMA, S; NOZAWA, Y **Cell growth inhibitory effect of cinnamic acid derivatives**

from propolis on human tumour cell lines. Biological & Pharmaceutical Bulletin (2003) **26** (7) 1057-1059 [En, Bc] Gifu International Inst. Of Biotechnology, Kakamigahara, Gifu 505-0838, Japan.

A cell growth inhibitory effect of drupanin and baccharin, components of propolis, was found in human cancer cell lines. These compounds induced apoptosis in the cells characterized by morphological and nucleosomal DNA fragmentation analysis. Their effects were less potent compared with that of artemisinin, which is a known anticancer compound from propolis.

306/05 ANSORGE, S; REINHOLD, D; LENDECKEL, U **Propolis and some of its constituents down-regulate DNA synthesis and inflammatory cytokine production but induce TGF-beta 1 production of human immune cells.** Zeitschrift für Naturforschung, C (2003) **58** (7/8) 580-589 [En, wf] Inst. Of Medical Technology Magdeburg (IMTM), Magdeburg, Germany.

The effects of the propolis flavanoids hesperidin and quercetin, and of caffeic acid phenethyl ester, on basic human immune cell functions were investigated. The results are reported and it is concluded that propolis can be considered as a powerful natural anti-inflammatory which influences different types of immune responses, probably via immunoregulatory T cells.

309/05 BOYANOVA, L; DEREJIAN, S; KOUMANOVA, R; KATSAROV, N; GERGOVA, G; MITOV, I; NIKOLOV, R; KRASTEVA, Z **Inhibition of helicobacter pylori growth in vitro by Bulgarian propolis: preliminary report.** Journal of Medical Microbiology (2003) **52** (5) 417-419 [En, wf] Dept of Microbiology, Medical Univ. of Sofia, Sofia, Bulgaria.

Activity of 30% ethanolic extract of propolis (EEP) against 38 clinical isolates of *H. pylori* was evaluated by the agar-well diffusion method, with ethanol as a control. Mean diameters of *H. pylori* growth inhibition, using 30, 60 or 90 µl EEP or 30 µl ethanol/well, were 17.8, 21.2, 28.2 and 8.5 mm, respectively. In disc diffusion tests of the effect of moist propolis discs on the growth of 26 *H. pylori* and 18 *Campylobacter* strains, mean diameters of growth inhibition were 21.4 mm and 13.6 mm, respectively. Dried propolis discs exhibited an antibacterial effect against 73.1% of *H. pylori* isolates, with a considerable zone of growth inhibition (15 mm or more) in 36.4% of isolates. Using dried propolis discs resulted in mean diameters of growth inhibition of 12.4 mm for *H. pylori* and 11.6 mm for *Campylobacter* spp.

315/05 DUARTE, S; KOO, H; BOWEN, W H; HAYACIBARA, M F; CURY, J A; IKEGAKI, M; ROSALEN, P L **Effect of a novel type of propolis and its chemical fractions on glucosyltransferases and on growth and adherence of mutans streptococci.** Biological & Pharmaceutical Bulletin (2003) **26** (4) 527-531 [En, wf] Dept of Physiological Sciences, Dentistry School of Piracicaba, State Univ. of Campinas Brazil, Av. Limeira 901, Piracicaba, Sao Paulo, CEP 13414 903, Brazil.

A new variety of flavanoid-free propolis has been found recently and has been chemically classified as type 6. This study evaluated the effects of the crude ethanolic extract of this propolis and its chemical fractions on the activity of purified glucosyltransferases (GTFs) and on the growth and adherence of mutans streptococci. The activity of GTFs in solution was effectively inhibited by the ethanol extract (>80% inhibition at 0.5 mg/ml), and by hexane and chloroform fractions (60-90% inhibition at 100 µg/ml); their inhibitory effects on surface enzymes were less pronounced. The ethanol, hexane and chloroform fractions also showed significant antibacterial activity. The results showed that propolis type 6 caused a remarkable reduction in GTF activity and inhibited mutans streptococci growth and adherence. These biological activities are associated with its nonpolar components.

317/05 HAMASAKA, T; KUMAZAWA, S; FUJIMOTO, T; NAKAYAMA, T **Antioxidant activity and constituents of propolis collected in various areas of Japan.** Food Science and Technology Research (2004) **10** (1) 86-92 [En, Bc] Lab. Of Functional Food Science, Dept of Food and Nutritional Sciences, Univ. of Shizuoka, 52-1 Yada, Shizuoka 422-8526, Japan.

Antioxidant activity and composition were compared in ethanol extracts of propolis from 14 locations. Activity was relatively high in 2 samples and was correlated with total content of polyphenols. One sample contained large amounts of the antioxidative compounds caffeic acid and phenethyl caffeate. [P Walker]

322/05 KUMAZAWA, S; GOTO, H; HAMASAKA, T; FUKUMOTO, S; FUJIMOTO, T; NAKAYAMA, T **A new prenylated flavanoid from propolis collected in Okinawa, Japan.** Bioscience, Biotechnology and Biochemistry (2004) **68** (1) 260-262 [En, Bc] Lab. of Functional Food Science, Dept of Food and Nutritional Sciences, Univ. of Shizuoka, 52-1 Yada, Shizuoka 422-8526, Japan.

The new flavanoid, isonymphaeol-B, was isolated, together with 3 known compounds.

325/05 KUMAZAWA, S; SHIMOI, K; HAYASHI, K; ISHII, T; HAMASAKA, T; NAKAYAMA, T
Identification of metabolites in plasma and urine of Uruguayan propolis-treated rats. Journal of Agricultural and Food Chemistry (2004) **52** 3083-3088 [En, Bc] Lab. Of Functional Food Science, Dept of Food and Nutritional Sciences, Univ. of Shizuoka, 52-1 Yada, Shizuoka 422-8526, Japan.

The results of analyses showed that after oral administration of propolis to rats, its flavonoids were metabolized and circulated in the body.

341/05 ORSOLIC, N; BASIC, I **Immunomodulation by water-soluble derivative of propolis: a factor of antitumor reactivity.** Journal of Ethnopharmacology (2003) **84** (2/3) 265-273 [En, X] Dept of Animal Physiology, Faculty of Science, Univ. of Zagreb, Rooseveltov trg 6, 10000 Zagreb, Croatia.

The antimetastatic efficacy of a water-soluble derivative of propolis (WSDP) was studied in a transplantable mammary carcinoma of CBA mouse. Metastases in the lung were generated by 2×10^5 viable tumour cells i.v. WSDP given intraperitoneally at doses of 50 or 150 mg/kg before or after tumour cell inoculation significantly suppressed the number of metastases in the lung and also tumour growth, probably through immunomodulatory activity.

344/05 PINTO, M S; FARIA, J E DE; MESSAGE, D; CASSINI, S T A; PEREIRA, C S; GIOSO, M M
[Effect of green propolis extracts on pathogenic bacteria isolated from milk of cows with mastitis.] **Efeito de extratos de propolis verde sobre bactérias patogênicas isoladas do leite de vacas com mastite.** Brazilian Journal of Veterinary Research and Animal Science (2001) **38** (1/6) 278-283 [Pt, en, X] IESES, FACASTELO, Castelo, ES, Brazil.

Commercial propolis and ethanol and methanol extracts inhibited the growth of Gram-positive bacteria, *Staphylococcus aureus*, coagulase negative staphylococci and *Streptococcus agalactiae*, but not that of Gram-negative bacteria from the coliform group. Other propolis extracts tested did not inhibit growth of these bacteria. Propolis should be studied further for the treatment of bovine mastitis.

346/05 PRYTZYK, E; DANTAS, A P; SALOMÃO, K; PEREIRA, A S; BANKOVA, V S; CASTRO, S L DE; AQUINO NETO, F R **Flavonoids and trypanocidal activity of Bulgarian propolis.** Journal of Ethnopharmacology (2003) **88** (2/3) 189-193 [En, X] Ladetec, Instituto de Química, Universidade Federal do Rio de Janeiro, Ilha do Fundão, Cidade Universitária, CT Bl. A, 21949-900 Rio de Janeiro, RJ, Brazil.

Extracts of 2 propolis samples were investigated. The ethanol extracts of both samples had a similar composition, with a high content of flavonoids; they both showed strong inhibitory activity against *Trypanosoma cruzi* proliferative epimastigotes, which were more susceptible than trypomastigotes. In the presence of blood, the activity of these extracts against trypomastigotes was similar to that of the standard drug, crystal violet. Both extracts also showed similar and significant activity against *Staphylococcus aureus* and *Candida albicans*, but not against *Escherichia coli*. The acetone extract of one sample was more active than the ethanol extract against both forms of *T. cruzi*.

347/05 QIKANG ZHANG; JINGJING ZHOU; ZHENHONG WU; ZHONGMIN FU; XIAOQING MIAO
[Study of the anti-tumour effect of 'Shen Feng' J9311 propolis capsule]. Apiculture of China (2004) **54** (5) 4-6 [Ch, B] Apitherapy Inst., Fujian Agriculture and Forestry Univ., 35002 Fuzhou, China.

This water-soluble capsule was effective against S180 cells (dose: 0.6-4.8 g/kg) and H22 cells (1.6-6.0 g/kg).

1668/05 KABALA DZIK, A; SZAFLARSKA STOJKO, E; WOJTYCZKA, R D; STOJKO, A; STOJKO, R; PACHA, J **Comparative studies on the antimicrobial activity of propolis balm and silver sulfadiazine applied to burn wounds in pigs.** Bulletin of the Veterinary Institute in Pulawy (2003) **47** (2) 541-545 [En, X] Dept of Pathology, Faculty of Pharmacy, Medical Univ. of Silesia, 41-200 Sosnowiec, Poland.

Burn wounds were treated once a day either with 1% propolis balm 1% silver sulfadiazine (SSD). Clinical and bacteriological examinations showed that the propolis balm was more effective. Propolis showed bacteriostatic activity, particularly against *Staphylococcus aureus*, and germicidal activity against *Bacillus* spp., *Enterococcus faecalis* and *Candida albicans*.

1312/05 STEPANOVIC, S; ANTIC, N; DAKIC, I; SVABIC VLAHOVIC, M **In vitro antimicrobial activity of propolis and synergism between propolis and antimicrobial drugs.** Microbiological Research (2003) **158** (4) 353-357 [En, wf] Dept of Bacteriology, Inst. Of Microbiology and immunology, School of Medicine, Univ. of Belgrade, Dr Subotica 1, 11000 Belgrade Yugoslavia.

The aim of this study was to investigate the antimicrobial properties of the ethanolic extract of 13 propolis samples from different regions of Serbia against 39 micro organisms (14 resistant or multiresistant to antibiotics), and to determine synergistic activity between antimicrobials and propolis. The propolis extracts, irrespective of microbial resistance to antibiotics, showed significant antimicrobial activities against Gram-positive bacteria (MIC 0.078-1.25% of extract) and yeasts (MIC 0.16-1.25%), while Gram-negative bacteria were less susceptible (MIC 1.25 to >5%). Enterococcus faecalis was the most resistant Gram-positive bacterium, Salmonella spp. The most resistant Gram-negative bacteria and Candida albicans the most resistant yeast. The extracts showed synergism with selected antibiotics, and displayed ability to enhance the activities of antifungals.

1232/04 SUGIMOTO, Y; IBA, Y; KAYASUGA, R; KIRINO, Y; NISHIGA, M; HOSSEN, M A; OKIHARA, K; SUGIMOTO, H; YAMADA, H; KAMEI, C **Inhibitory effects of propolis granular A.P.C on 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone-induced lung tumorigenesis in A/J mice.** Cancer Letters (2003) **193** (2) 155-159 [En, wf] Dept of Pharmacology, Faculty of Pharmaceutical Sciences, Okayama Univ., 1-1-1 Tsushima-naka, Okayama 700-8530, Japan.

Propolis granular A.P.C significantly decreased the number of lung tumours induced in mice by a tobacco-specific carcinogen.

1790/05 CHEN CHIANAN; WU CHIALI; LIN JENKUN **Propolin C from propolis induces apoptosis through activating caspases, Bid and cytochrom c release in human melanoma cells.** *Biochemical Pharmacology* (2004) **67** (1) 53-66 [En, X] Graduate Inst. Of biochemistry and Molecular Biology, college of Medicine, National Taiwan Univ., Section 1, Jen-Ai road, Taipei 100, Taiwan.

It was previously reported that 2 prenylflavonones, propolin A and Propolin B which were isolated and characterized from Taiwanese propolis, induced apoptosis in human melanoma cells and significantly inhibited xanthine oxidase activity. A third compound with similar properties, propolin C, is now described; its structure was shown to be identical to that of nymphaeol-A. It has a cytotoxic effect on human melanoma cells, and actively induces apoptosis. An investigation of the mechanism of the apoptosis suggests that propolin C may activate a mitochondria-mediated apoptosis pathway. Propolin C is also potential antioxidant agent and is a powerful scavenger of free radicals and inhibitor of xanthine oxidase activity.

179/05 ERDEM, G B; OLMEZ, S **Inhibitory effect of bursa propolis on dental caries formation in rats inoculated with *Streptococcus sobrinus*.** Turkish Journal of Zoology (2004) **28** (1) 29-36 [En, tr, X] Dept of paediatric Dentistry, Hacettepe Univ., Ankara, Turkey.

The effect of propolis on the growth of *Lactobacillus casei* and 2 *Streptococcus* species was investigated *in vitro*. It showed the greatest inhibitory effect on *S. sobrinus*. In rats inoculated with *S. sobrinus* and given propolis, the severity of sulcal enamel and superficial dentine lesions was significantly less than that in the control group, but colony forming unit numbers and the caries scores in other levels did not differ between the groups. The results suggest that propolis is effective in controlling dental caries in the rat model.

1793/05 HUFULIANG; XUAN HONG ZHUAN; CHEN MINLI; YING HUAZHONG; ZHU WEI **Effects of propolis on diabetes mellitus in SD rats.** *Journal of Zhejiang University (Agriculture and Life Sciences)* (2004) **30** (2) 205-209 [Chen, en, X] Dept of special Economic animal Science, Zhejiang Univ., Hangzhou 3100029, China.

The effects of ethanol extracted propolis (E) and water soluble derivative of propolis (W) on diabetes mellitus in SD rats were determined and compared. Both E and W caused a decrease in levels of fasting blood glucose, glycosylated haemoglobin, fructosamine, triglyceride, total cholesterol, creatinine, blood urea nitrogen, uric acid, malodialdehyde, total protein and albumin, and decreased the ratio of kidney to body weight. The results indicated that both E and W improved metabolism of glucose, fat and protein and afforded renal protection for rats with diabetes mellitus.

1802/05 PADMAVATHI, R; SAKTHISEKARAN, D **Combined effect of paclitaxel and propolis against 7, 12 dimethyl benz (A) anthracene induced experimental breast cancer.** *Biomedicine (2003) (23)* (1/2) 72-77 [En, X] Dept of Medical Biochemistry, Dr ALM PG IBMS, UNIV. of Madras, Taramani, Chennai - 600 113, India.

The study showed that propolis has a pharmacological role in treating experimental breast cancer in rats. It had a maximum activity when administered with paclitaxel.