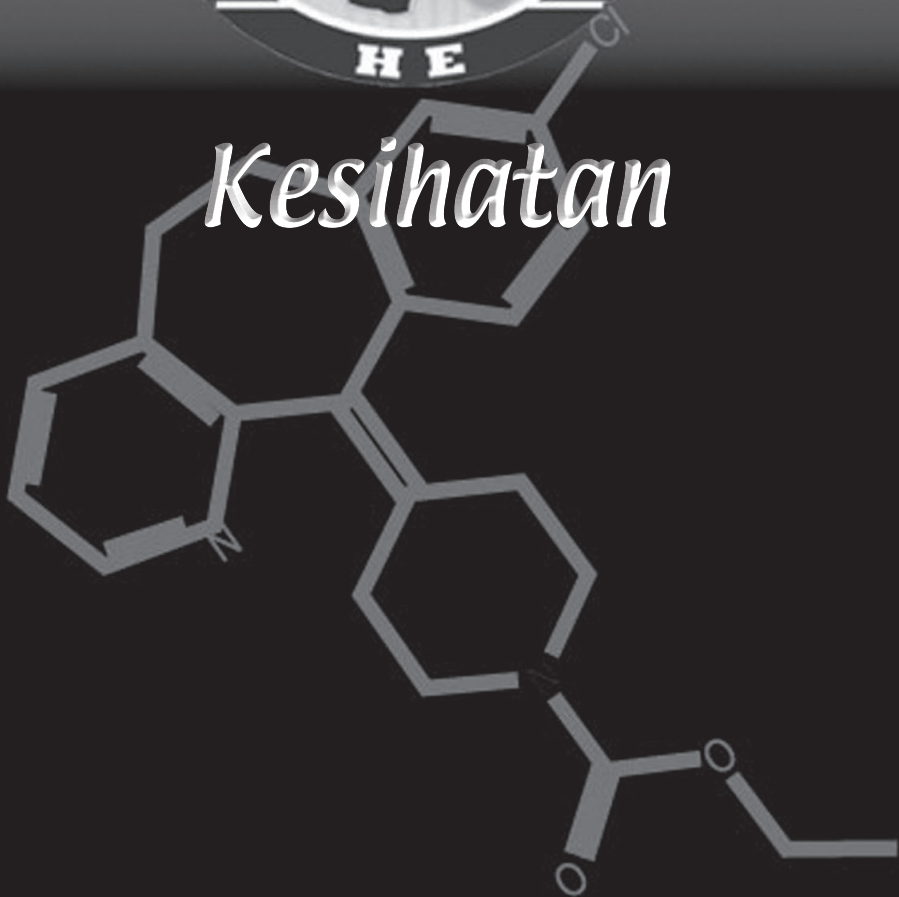




Kesehatan



Total Isoflavone Content in Soy Products and Urinary Isoflavone Excretion of Post Menopausal Malay Women Consuming *Tempeh*

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ABSTRACT

Isoflavones are substances that have antioxidant and radical-scavenging activity which could give health-promoting effects. *Tempeh* is a fermented soy product that is mostly consumed by the Malay population and it contains high amount of isoflavones. The quantitation of isoflavones in humans is important to establish the benefits of this compound to the populations. Equol is the most important metabolite of isoflavone since it has a greater affinity for binding to the estrogen receptor than its precursor (daidzein). It is necessary to estimate the isoflavone intake of the local foods in order to study the protective effects of isoflavone against the risk of chronic diseases. However, database for isoflavone content of Malaysian local soy foods is not available. Thus, this study was carried out to determine total isoflavone content in soy products commonly consumed by Malaysians. The isoflavone urinary excretions of 20 post menopausal Malay women consuming it were also evaluated. The findings of this study indicated that *tempeh* contained highest amount of total isoflavone compared to other local soy products. All post menopausal Malay women have consumed 240 g of *tempeh* (160 mg isoflavones) for three consecutive days and excreted significant amount of daidzein, genestein and equol concentrations compared to the baseline. Daidzein concentration was consistently higher than genestein in all the collected urine pools which showed that daidzein was absorbed faster compared to genestein. Nearly all women excreted equol but the amount was not high enough to define them as equol producer. There was only one subject who could be classified as equol producer. This study has showed that *tempeh* contained high amount of isoflavone (aglycone form), and the isoflavones were bioavailable among the studied post menopausal Malay women.

Keywords: *tempeh*, total isoflavones, daidzein, genestein, equol



MT1-MMP Regulates Urothelial Cell Invasion via Transcriptional Regulation of Dickkopf-3

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ABSTRACT

Membrane type-1 matrix metalloproteinase (MT1-MMP) is a zinc-binding endopeptidase, which plays a crucial role in tumour growth, invasion and metastasis. We have shown previously that MT1-MMP has higher expression levels in the human urothelial cell carcinoma (UCC) tissue. We show here that siRNA against MT1-MMP blocks invasion in UCC cell lines. Invasion is also blocked by broad-spectrum protease and MMP inhibitors including tissue inhibitor of metalloproteinase-1 and -2. Membrane type-1-MMP can also regulate transcription. We have used expression arrays to identify genes that are differentially transcribed when siRNA is used to suppress MT1-MMP expression. Upon MT1-MMP knockdown, Dickkopf-3 (DKK3) expression was highly upregulated. The stability of DKK3 mRNA was unaffected under these conditions, suggesting transcriptional regulation of DKK3 by MT1-MMP. Dickkopf-3 has been previously shown to inhibit invasion. We confirm that the overexpression of DKK3 leads to decreased invasive potential as well as delayed wound healing. We show for the first time that the effects of MT1-MMP on cell invasion are mediated in part through changes in DKK3 gene transcription.

Keywords: MMP, urothelial cell carcinoma, Invasion, siRNA

Malaria Therapy using Local Common Malaysian Plants with Anti Plasmodial Properties

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ABSTRACT

A recent paradigm in malaria research is on a systematic examination of indigenous plants used in traditional or complimentary medicine as potential sources of new antimalarial drugs. Ten Malaysian medicinal plants were screened for their antiplasmodial activities. These plants were selected based on their traditional claims for treatment of ailments or to relieve fever. For their *in vitro* antiplasmodial activities, the FCR-3 strain of *Plasmodium falciparum* was used as target while the cytotoxic activities were carried out against Madin- Darby bovine kidney (MDBK) cells using Mtt assay. The 7-day suppressive test was employed to determine the parasitemia suppression of the plant extracts against *P. berghei*. Four of these plants produced considerable antimalarial effects. Their percentage inhibition were more than 50% inhibition to parasite growth at the 0.03 ug/ml extract concentrations. *Tinospora crispa* showed the maximum at 90 % inhibition, followed by *Andrographis paniculata* at 80 % and *Anacardium occidentale* and *Punica granatum* both at 70 %. After 7 days of treatment with the methanol extract, mean parasitemia suppression in the *P. berghei*-infected mice ranged from 1.14±0.22 at day 1 to 50.73±1.32 at day 6. Mice that survived until the sixth day were those treated with *T. crispa* (n=3) and *Anacardium occidentale* (n=2). All these plants have traditional claims as to relieve fever and this study provides a preliminary scientific evidence for the claims. Logical extension of this research is in the isolation of bioactive compounds from these plants which potentially lead to the discovery of novel antimalarial drugs for both therapy and prophylaxis of the disease.

Keywords: malaria, chemotherapy, plants, parasitemia suppression



Methicillin Resistant *Staphylococcus aureus* ST 9 in Pigs

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ABSTRACT

Methicillin resistant *Staphylococcus aureus* (MRSA) primarily causes human diseases and has recently been identified in pigs and pig handlers. In Malaysia, several studies reported the prevalence and characteristics of MRSA from clinical and community settings. However, no data were as yet presented on MRSA in pigs. We here investigated the prevalence and molecular characterisation of MRSA colonisation in pigs and pig handlers in Malaysia. Four hundred and fifty nasal swabs (360 from pigs and 90 from human) were taken from thirty randomly selected farms in Kuala Langat district. MRSA was isolated from 1.38% (5/360) pigs and 5.5% (5/90) pig handlers. Antibiotic susceptibility revealed 100% resistance to commonly used antibiotics and showed surprising pattern of clindamycin, quinupristin-dalfopristine and tigecycline resistance. All MRSA isolates subjected to staphylococcal protein A (*spa*) sequencing, staphylococcal cassette chromosome *mec* (SCC*mec*) typing and multilocus sequence typing (MLST) showed our MRSA isolates belonged to two STs: ST9 (*spa* type t4358) and ST1 (*spa* type t1784) and carried SCC*mec* V. Virulence gene analysis revealed the presence of enterotoxin genes such as *seb* (60%), *see* (10%), *seg* (90%) and MSCRAMMs that include *cna* (20%, only in ST1 isolates) and *fnb* (100%). None of the MRSA isolates carried the *pvl*, *eta*, *etb*, *tsst* or other enterotoxin genes. This is the first study to document MRSA in pigs and pig handlers in Malaysia, and to our knowledge, the first report on the isolation of MRSA ST9- t4358-SCC*mec*V from pigs as well as humans globally. The clonal spread of multiresistant porcine MRSA and transmission between pigs and human warns the possible emergence of ST9 as a cause of clinical infections in human. As pigs are food producing animals, there are inherent concerns about contamination of food. The prevalence of MRSA in farming animals and handlers needs to be monitored continuously as it may play a vital role in food safety and public health.

Keywords: MRSA in pigs, Malaysia, ST9- MRSA, SCC*mec* V, *spa* type t4358

Relationship of Waist-to-height Ratio with Waist Circumference, Body Mass Index and Metabolic Risk Factors among Elderly Malays in Rural Areas

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ABSTRACT

With industrialisation and urbanisation there is a dramatic increase in the prevalence of obesity. Obesity and dyslipidemia are among the major risk factors associated with cardiovascular disease (CVD) leading to increased morbidity and mortality. Waist-to-height ratio (WHtR) has been proposed to be a sensitive indicator to assess central fat distribution and can be used to identify individuals who are at increased risk for metabolic disorders. The purpose of this paper is to examine the relationship of WHtR with indicators of obesity and dyslipidemia among elderly Malays from four rural areas in Peninsular Malaysia. Data were collected at selected health centers or through household visits using face-to-face interviews. Anthropometric measurements were taken using standard procedures and appropriate equipments. Fasting blood samples were analysed for lipid profile. WHtR greater than 0.5 was considered as a cut-off value to indicate risk for central obesity. A total of 351 subjects with complete data were included in this analysis. The mean WHtR for men and women were 0.53 and 0.56 respectively. About 68% of the subjects were classified with central obesity based on the WHtR>0.5, representing 68.5% of men, 67.4% of women, 47.4% with waist circumference at low risk and 58.4% in the normal BMI range. Based on five metabolic risk factors (hypercholesterolemia, hypertriglyceridemia, low HDL-cholesterol, high LDL-cholesterol and hypertension), 3.1% were without any risk factors while 44.8% had four or more risk factors. The prevalence of metabolic risks were significantly higher among those with WHtR>0.5. Waist-to-height ratio can provide a simple and practical indicator to identify higher metabolic risks in normal and overweight older adults. The usefulness of this indicator needs to be confirmed among the Malaysian population through future studies among different age and ethnic groups, gender and strata.

Keywords: waist-to-height ratio, central obesity, elderly



Inhibition of Leukotriene Production by Compounds and Extracts of *Melicope ptelefolia*: Potential Role in the Treatment of Asthma

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ABSTRACT

Melicope ptelefolia (setenggek burung) is a medicinal species and traditional 'ulam'. In our previous studies we showed extracts and compounds of this plant had antioxidative and anti-inflammatory properties. The plant was then further evaluated and found to inhibit 5-lipoxygenase (5-LOX) activity which is involved predominantly in local inflammation, vascular smooth muscle cell migration and modulation of vascular tone. Through bioassay-guided approach of the active extract (ethanolic extract), two major bioactive constituents, tHGA and tHPA were successfully identified. tHGA was further found to inhibit the production of cysteinyl leukotrienes (cLTs) production in activated mice macrophages. Inflammatory cells (T-lymphocyte, mast cells, eosinophils and macrophages) are implicated in the pathogenesis of bronchial asthma. The maximum tolerated dose (MTD) for the ethanolic extracts of *Melicope ptelefolia* was found to be 200 mg/kg since there was >10% decrease of body weight on day 7 of rats given 300 mg/kg dose compared to control rats. The active ethanolic extract and compound will be further evaluated for anti-asthma property in a mouse model.

Keywords: *melicope ptelefolia*, tHGA, cysteinyl leukotrienes, anti-inflammatory, anti-asthma

Handgrip Strength and its Association with Nutritional and Functional Status among Rural Elderly Malays

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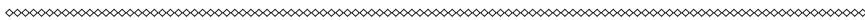
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ABSTRACT

Handgrip strength is the most common assessment method for upper extremity muscle strength. It has been shown to be a powerful predictor of disability, morbidity and mortality and may be a useful indicator for nutritional status as well as functional ability among older adults. The purpose of this paper is to examine the relationship of handgrip strength with nutritional and functional status of elderly Malays from four rural areas in Peninsular Malaysia. Data were collected at selected health centers or through household visits using face-to-face interviews. Anthropometric measurements were taken using standard procedures and appropriate equipments. Handgrip strength was measured using a hand dynamometer. Arm muscle area (AMA) and skeletal muscle mass (SMM) was computed using appropriate formulae. Information on functional status and other health related characteristics were collected through questionnaires. A total of 658 subjects (men=371; women=287) with complete data were included in this analysis. The handgrip strength was significantly higher in men vs women (18.85±5.3 kg vs 13.35±4.2 kg). According to age categories, the handgrip strength tends to decline with increasing age in both sexes. Elderly who were underweight (BMI<18.5 kg/m²), with calf circumference at risk for malnutrition and classified as 'severely malnourished' based on the subjective global assessment (SGA) had significantly lower handgrip strength. Handgrip strength was significantly correlated with selected nutritional status indicators including body mass index (BMI), SMM, AMA and percent body fat, in both men and women. For indicators of functional status, scores for instrumental activity of daily living (IADL) and mobility were positively correlated with handgrip strength. Poor nutritional and functional status is associated with poor handgrip strength in this sample of rural elderly Malays. Further studies and analysis is needed to identify which are significant contributors to the variation in handgrip strength among the elderly population.

Keywords: handgrip strength, nutritional and functional status, elderly



Diuretic Properties of *Orthosiphon stamineus* Benth: Potential Use in Sports Medicine

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ABSTRACT

Orthosiphon stamineus or Cat's Whiskers or "misai kucing" in Malay from the family Lamiaceae is a native plant of South East Asia. This plant has been used in traditional medicine for centuries to improve general health, treatment of kidney diseases, bladder inflammation, gout and diabetes. *O. Stamineus* also being used to treat rheumatism, tonsillitis and menstrual disorder. Aim of the study: To investigate the diuretic activity, to elucidate its possible mechanism and evaluate the renal effects of *Orthosiphon stamineus* extract. Materials and methods: Water extracts were administered orally at doses of 5 and 10 mg/kg to Sprague-Dawley rats and the control groups were given commercial diuretic drugs either furosemide or hydrochlorothiazide at 10 mg/kg. Urine volume, urine pH, urine density and urine electrolytes were determined every hour for 4 hours. Blood was assayed for glucose, albumin, blood urea nitrogen (BUN) and creatinine. Results: *O. stamineus* extract exhibited dose-dependent diuretic activity. However, excretion of Na⁺ and Cl⁻ was not markedly elevated, but urinary excretion of K⁺ was significantly increased. *O. stamineus* extracts slightly increased the serum BUN, creatinine and blood glucose level. Although, these levels were statistically significantly when compared to control but these levels were still within normal range. Conclusion: *O. stamineus* exhibited diuretic activity, but was less potent than furosemide and hydrochlorothiazide. Care should be taken when consuming this herb as slight increase of kidney function enzymes was recorded.

Keywords: diuretic, electrolytes, *ortosiphon stamineus*

