P1.077

Sasang types differ in thermoregulatory responses to graded exercise

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Purpose: We compared sweating response to graded exercise and its potentially related variables such as workload (We), metabolic heat production (Hprod), and temperature increment load (Tinc) according to Sasang typology.

Methods: This cross-sectional investigation included 304 apparently healthy participants at their age between 20 and 49 with their Sasang types determined. Local sweating rate measured on the chest (LSRchest) and on the back (LSRback) were measured by a perspiration meter using ventilated capsule method during a maximal treadmill exercise test. Meanwhile, oxygen uptake was measured constantly using a breath-by-breath mode indirect calorimeter. Body composition was examined by the direct segmental multi-frequency bio-impedance analysis technique.

Results: The TaeEum (TE) type was characterized by unfavorable anthropometric feature for heat loss including a larger body size, a higher fatness, and a lower body area surface area to body mass in compared with other Sasang types, particularly the SoEum type. The TE type tended to have a shorter exercise time to exhaustion and lower maximal oxygen uptake (ml.kg-1.min-1) than other types. The TE type had a stronger elevation of LSRchest in men and LSRchest in women at the middle stage of the exercise even when sweat rate was normalized for We, Hprod, Tinc, and body surface area.

Conclusion: The findings suggested that Sasang types may differ in thermoregulatory response to graded exercise in which the TE type was the most susceptible type to heat stress.(This work is supported by NRF, No. 2012-0009829).

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P1.079

Optimization of ultrasonic-assisted extraction of glycyrrhizic acid from licorice using response surface methodology

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Purpose: The present study optimized the ultrasonic-assisted extraction conditions to maximize the glycyrrhizic acid of extracts from licorice.

Methods: Optimal conditions with regard to extraction temperature (X1), extraction time (X2) and methanol concentration (X3) were identified using response surface methodology (RSM). A central composite design (CCD) was used for experimental design and analysis of the results to obtain the optimal processing parameters.

Results: The statistical analysis indicated that three variables and the quadratic of X1, X2 and X3 had significant effects on the yields, and followed by the significant interaction effects between the variables of X2 and X3 ($p<0.01$). The 3D response surface plot and the contour plots derived from the mathematical models were applied to determine the optimal conditions. The optimum ultrasonic-assisted extraction conditions were as follows: extraction temperature 69°C, extraction time 34 min and methanol concentration 57%. Under these conditions, the experimental yield of glycyrrhizic acid was 3.414%, which was agreed closely with the predicted value (3.406%).

Conclusion: The experimental values agreed with those predicted by RSM models, thus indicating suitability of the model employed and the success of RSM in optimizing the extraction conditions.

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P1.080

Topical Herbal Application in the Management of Atopic Dermatitis: A Review of Animal Studies

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Purpose: Herbs are widely used in the treatment of atopic dermatitis (AD) in Eastern Asian countries, and certain herbs regarded have anti-inflammatory properties that can help with AD. With the goal of developing a topical herbal agent for AD, we conducted a systematic review of in vivo studies of AD-like skin models for screening potential herbs.

Methods: Literature searches were performed using PubMed and EMBASE databases. Search terms contained three components: (A) intervention/exposure, (B) disease of interest, and (C) animal species, with adjustments made for the different databases. Two authors independently conducted the database searches. Duplicate articles were removed. Disagreements were resolved by discussions with the corresponding author.

Results: In the present study, out of 166 potential studies, we identified 22 studies that met all the selection criteria. For all studies, we judged most domains to be at unclear risk of bias. Herbs of the genus Chrysanthemum were used in two studies, and seven studies investigated herbs of the clear heat drug group. Among the AD-like animal models, NC/Nga and BALB/c mice treated with chemical haptens, DNCB, DNFB, or TNCB were used in most of the studies. Clinical symptoms, serum IgE levels, and Th1- and/or Th2-related cytokines and/or chemokines were assessed as outcome measurements.

Among the 22 included studies, 21 herbs were reported to reduce AD-like skin lesions in mouse models by suppressing Th2 cell responses.

Conclusion: By summarizing the results from the published literature, we hope that this study might aid in finding a potential herbal therapeutic agent for the treatment of AD. The limitation of this study was that a meta-analysis was not conducted because of the variety of investigated herbs included in the studies. Nevertheless, this review may assist in identifying directions for further researches endeavors.

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P1.081

Effects of Twelve Korean Combined Herbal Prescriptions with Platycodon Grandiflorum on Induction of Autophagy and Inhibition of Cell Proliferation

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Purpose: In this research, we tested whether 12 Korean traditional combined herbal prescriptions including Platycodon Grandiflorum (PG) in Dong-Eui-Bo-Gam at the part of Ong-Jeo (abscesses and carbuncles) have anticancer properties through induction of autophagy.

Methods: Human lung adenocarcinoma A549 cells were treated with respective prescriptions and the antiproliferative potentials were measured using an MTT assay. The morphological changes were determined and the expressions of autophagy-related proteins (ATG) were investigated using an immunoblotting assay with specific antibodies.

Results: Our findings indicated that all of 12 prescriptions with PG showed formation of autophagic vacuoles. The expression of microtubule-associated protein 1 light chain 3 and Beclin-1, and ATG7 were significantly increased. In addition, 12 prescriptions treatments resulted in a dose-dependent inhibition to cell proliferation. Among them, Mok-Dan-Pi-Tang showed the highest activity than others.

Conclusion: Treatments of 12 Korean traditional combined herbal prescriptions with PG triggered autophagy and decreased cell growth of A549 lung cancer cells. Moreover, Mok-Dan-Pi-Tang which was used to treat Pyo-Ong (lung abscesses) could be the best anticancer candidate in lung cancer therapy [NRF (No. 2013R1A1A2065537)].

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P1.082

Monitoring of Hippocampal NFκB activity using Lentiviral-based reporter system

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Purpose: The creation of molecular tools able to unravel in vivo spatiotemporal activation of cell signalling is of significant importance for the systemic study of complementary therapies in medicine. Particularly, NFκB signalling have been known to play a therapeutic role in many natural products including antioxidants for mental health, but its in vivo mechanism remains incompletely understood.

Methods: Here using bioluminescence imaging (BLI) technique, we describe the generation, validation and applications of a lentiviral-based luciferase reporter system for the in vivo NFκB signalling, named NFκB biosensor.

Results: The biosensor shows sensitive and selective detection as demonstrated by that TNF-α activated NFκB pathway activity in a dose-dependent manner, which was blocked by pyrrolidine dithiocarbamate (a specific NFκB inhibitor) in hippocampal neuronal cultures. Lithium as an alternative medicine for bipolar disorder also activated NFκB signalling via NFκB nucleus translocalization, providing an initial evidence that therapeutic action of lithium is involved in the modulation of NFκB signalling. We finally show that the sensor allows for monitoring of increased NFκB activity by lithium treatment in the hippocampal DG region of living mice.

Conclusion: By virtue of the unique functional characteristics of BLI, the biosensor provides an enormous potential high-throughput screening of therapeutic drugs and complementary therapies targeted to NFκB signalling.

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P1.084

Antioxidant effects of acupuncture in morphine plus acetaminophen injured rat liver

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Purpose: Morphine (MP) and acetaminophen (APAP), a world widely-used pain reliever and antipyretic, are known to induce hepatotoxicity. Acupuncture has been used for diverse effects including detoxification in Asia. In this study, the possi-