

GENOME WIDE EXPRESSION ANALYSIS OF THE EFFECT OF BANHAHOOBAK-TANG EXTRACT (BHTE), A TRADITIONAL KOREAN HERBAL FORMULA, ON PSYCHOLOGICAL STRESS IN MICE

© Lim CY¹, Lim SH², Cho SI³

¹Department of Medicine, College of Medicine, Dongguk University, 410-773, Republic of Korea

²Department of Nursing, School of Public Health, Far East University, 369-700, Republic of Korea

³Division of Pharmacology, School of Korean Medicine, Pusan National University, 626-770, Republic of Korea

Banhahoobak-tang (Table) has been used to treat symptoms caused by repeated emotional stress (1). Stress triggers important adaptive responses that enable an organism to cope with a changing environment. However, when prolonged or repeated, stress can be extremely harmful (2). In present report, anti-psychological effects of *Banhahoobak-tang* extract (BHTE) were observed. BHTE decreased serum level of corticosterone compared with control group. Genes up-regulated by psychological stress and restored by BHTE were involved in different pathways compared with that of genes down-regulated by psychological stress and restored by BHTE. Pathways

significantly enriched in genes up-regulated (A) and down-regulated (B) by psychological stress and restored by BHTE were analyzed via the SPIA program in the brain of mice (Figure). The horizontal axis shows the over-representation of a pathway (P_{NDE}) and the vertical axis, the perturbation of a pathway (P_{PERT}). Pathway analysis shows that genes up-regulated by psychological stress and restored by BHTE were involved in different pathways compared with that of genes down-regulated by psychological stress and restored by BHTE.

References: (1) Lee, GK (1994) Gumgyeyoryak from Aulos publishing company 600-1.

(2) Esther LS and Richard K (2001) TRENDS in Neurosciences 24 (2):91-98.

| Herbal Name | Scientific Name | Weight (g) |
|---------------------------|----------------------|------------|
| Pinelliae Rhizoma | Pinellia ternata | 6 |
| Magnoliae Cortex | Magnolia officinalis | 6 |
| Hoelen | Poria cocos | 9 |
| Zingiberis Rhizoma Crudus | Zingiber officinale | 2 |
| Perillae Herba | Perilla frutescens | 6 |
| Total Amount | | 29 |

Table. Prescription of *Banhahoobak-tang*

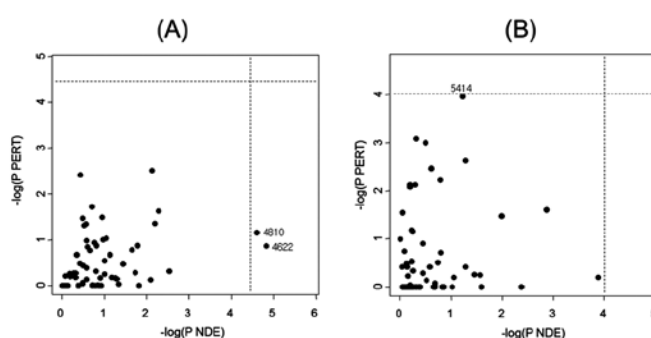


Figure. Pathway analysis of genes

ANGELICAE GIGANTIS RADIX AMELIORATES GENE EXPRESSION IN OVARIAN TISSUE ON POLYCYSTIC OVARY SYNDROME IN RATS

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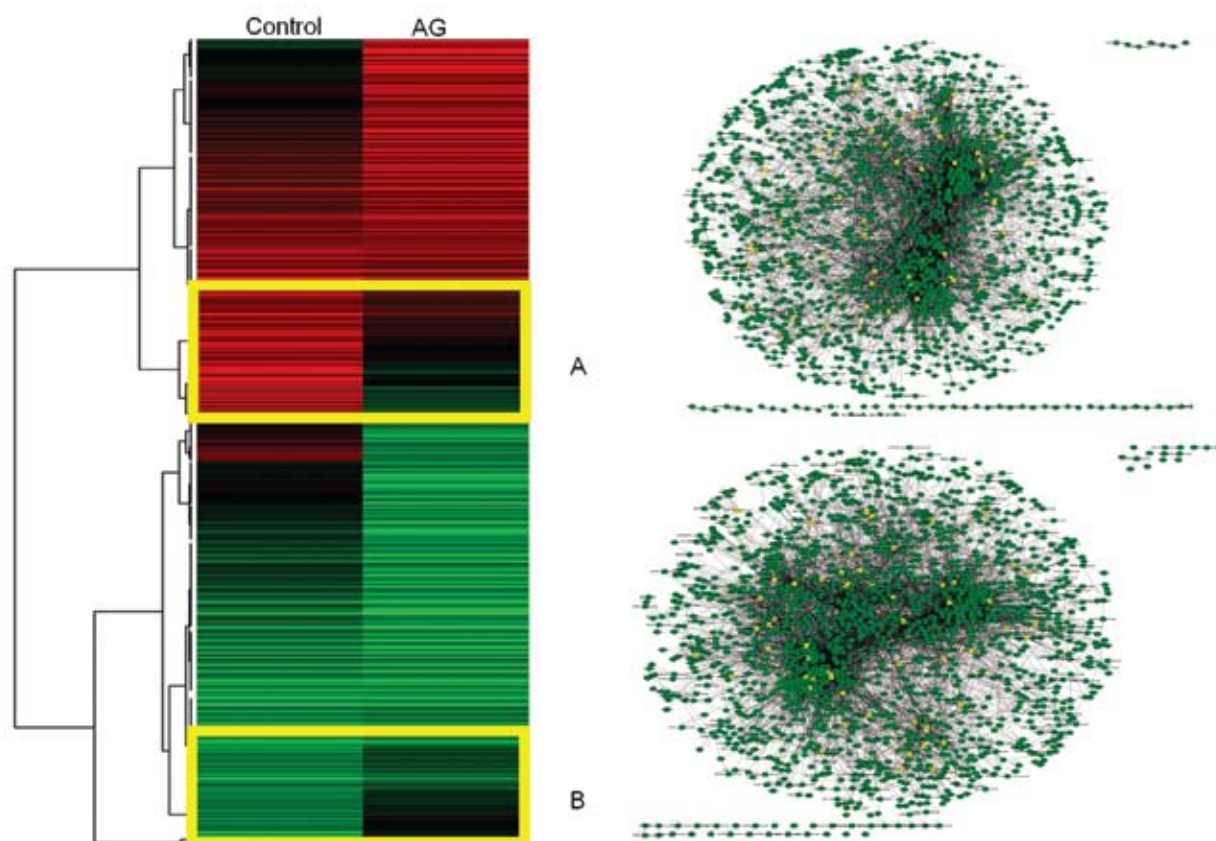
¹Department of Medicine, College of Medicine, Dongguk University, 410-773, Republic of Korea

²Department of Nursing, School of Public Health, Far East University, 369-700, Republic of Korea

³Division of Pharmacology, School of Korean Medicine, Pusan National University, 626-770, Republic of Korea

Angelicae gigantis Radix (AGR) is one of the most useful herbal-drug to treat patients with Polycystic Ovary Syndrome (PCOS) in Korean Traditional Medicine (1, 2). The present authors investigated the effects of AGR on gene expression of ovary tissue re-

sected from PCOS induced rats using single injection of beta-Estradiol 17-Valerate (EV). Total 2,812 genes were up-regulated or down-regulated, and expression levels of 1,442 genes were restored to those of naïve animals by administration of AGR (A and B in left



column). The network of total protein interaction was measured using Cytoscape program (right column), and some key molecules, such as IRS2, MCM10, ORC2L related in up-regulated genes, CTBP2, CD44, RHOA, related in down-regulated genes that can be

used for elucidation of therapeutic mechanism of medicine in future were identified.

References: (1) Jun K (2000) Herbology from Younglim publishing company 578–80. (2) Kang S (1977) Zhongyao Encyclopedia 102–9.

IN VITRO INHIBITORY EFFECT OF ESSENTIAL OILS AGAINST MICROBIOTA RELATED TO ORAL DISEASES

© **Choonharuangdej S., Muadchiangkha T.**

Department of Oral Microbiology, Faculty of Dentistry, Mahidol University, Bangkok, Thailand

Essential oils have been widely and effectively employed as the crucial parts of traditional Thai remedy in the field of folklore medicine for centuries. However, fewer studies have been conducted to evaluate the antimicrobial activity of these herbal extracts against some oral microorganisms closely related to oral diseases including dental caries, periodontal disease and candidiasis. Thus, some medicinal essential oils were tested for their inhibitory effects against cariogenic, periodontic and candidal pathogens. The selected essential oils were Anise (*Pimpinella anisum*), Cassia (*Cinnamomum aromaticum*), Cinnamon (*Cinnamomum zeylanicum*), Fennel sweet (*Foeniculum vulgare*), Grape fruit (*Citrus maxima*), Lemongrass (*Cymbopogon citratus*), Pine (*Pinus sylvestris*) and Wintergreen (*Gaultheria procumbens*) oils. All herbs were screened for their in-

hibitory activity against cariogenic (*Streptococcus mutans* ATCC 25175, *Lactobacillus casei*) and periodontic (*Porphyromonas gingivalis* W50) and *Candida albicans* ATCC10231 by means of agar disk diffusion. The inhibitory effect was evaluated from the appearance of inhibition zone. The results obtaining from this study can be classified into 3 major groups. For group I, cassia, cinnamon and lemongrass oils expressed inhibitory effects against all tested microorganisms with different degrees. Group II which included fennel sweet, grape fruit and wintergreen oils, in contrast, only inhibited the growth of *P. gingivalis* W50. As for group III, anise and pine oils inhibited the growth of *L. casei* and *P. gingivalis* W50. In conclusion, the selected essential oils all demonstrated antimicrobial property against one or more etiologic agents causing oral diseases.