

Front Line of Kampo Pharmacology

Review 1 of Pharmacology-related Academic Meetings

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This series will introduce the recent research and studies relating to Kampo medicines presented at academic conferences. The second installment of the series provides the presentations made at The 57th Annual Meeting of Japanese Society of Pharmacognosy held in Tokushima in September 2010.

Research for quality preservation of crude drugs and their discrimination

Shimura, et al. of Mie Prefecture Health and Environment Research Institute reported that they have developed a method of analyzing ephedrine species contained in over-the-counter Kampo extracts and established a HPLC analytical method to efficiently isolate and quantify ephedrine, pseudoephedrine, norephedrine and methylephedrine.

Wakaba, et al. of the National Institute of Health Sciences reported that metabolome analysis using ¹H-NMR is a useful method for correctly discriminating Pinellia Tuber from Arisaematis Rhizoma, both of them have very similar outward appearances.

Kobayashi, et al. of Osaka University reported that matabolome analysis by UPLC-TOF-MS and GC-TOF-MS is an effective method for identifying the original plant of Japanese Angelica Root.

Nakamura, et al. of Osaka University reported that they have made cluster analysis based on ICP-MS data to study the possibility of substituting gardening varieties for the root of *Paeonia lactiflora*

used as a crude drug. And they brought out the finding that several horticultural varieties can be applied to medicinal uses.

Research of the origins of crude drugs

Asahina, et al. of Ochanomizu University tried to identify the origin of Sekkoku being distributed as a crude drug on the markets in China and Hong Kong and clarified that most of Sekkoku available in the markets originate from the root of *Dendrobium officinale* and some originate from the root of *D. devonianum*.

Ooi, et al. of Kanazawa University studied on the origin of “the root of *Hedysarum polybotrys* (Shingi in Japanese name)” from its growing areas in mainland China and by referring to documents and have clarified that a certain volume of *Hedysarum polybotrys* (Fabaceae) has been used as Astragalus Rhizome since the period of North and South Dynastie.

Study on the cultivation of crude drug materials

Kabau, et al. of Kochi University reported that they have established conditions satisfying the Japanese Pharmacopia standards for the cultivation, in Kochi prefecture, of *Atractylodes lancea* for the use as the raw material of a crude drug Sojutsu, (*Atractylodes Lancea* Rhizome).

Basic pharmacological study on crude drugs and Kampo medicines

Chiba, et al. of Kitasato University obtained differences of traditional usages between Ginger and Processed Ginger in terms of TRPV1 agonist activity, clarifying that although the titers of 6-gingerol and 6-shogaol of guiding components apparently differed, there were no differences as crude drugs.

Shimato, et al. of Nagoya City University reported that they have investigated differences between *Atractylodes Lancea Rhizome* and *Atractylodes Rhizome* based on the inhibition of NO production from macrophages in the extract prepared from appropriately DNA-tested 48 plant specimens, with the results that although there were no differences in pharmacological titers between *Atractylodes Lancea Rhizome* and *Atractylodes Rhizome*. However, the activity was significantly weak in *A. ovata*, if the discrimination of species was necessary, compared to other plant species.

Yasui, et al. of Aichi Gakuin University reported that they have searched for active ingredients of *Aralia Rhizome* as a measure of retinoic acid receptor agonist activity and isolated ent-pimara-8(14),15-dien-19-oic acid.

Fukuda, et al. of Pola Kasei Kenkyusho reported that they have studied PPAR α agonist activity of Coix Seed and isolated 9-oxo-10(*E*), 12(*E*)-octadecadienoic acid.

Fukai, et al. of University of Toyama reported that the essence of *Bambusae Caulis* extracted by the hot water extraction method has the action of inhibiting viral infection in vitro and polysaccharides are the active substances.

Somehara, et al. of Nagoya City University reported that evodiamine contained in *Euodia Fructus* has the action of promoting the absorption of glucamine in the digestive tract.

Sugimoto, et al. of Yokohama College of Pharmacy reported that neferine contained in a *Nelumbo Seed* gives antidepressant actions mediated by the serotonergic nervous system in mice.

Ishida, et al. of Showa University reported of the action of Ginger on suppressing an increase in blood

glucose levels in mice. They also reported their finding that suggests Ginger's usefulness for metabolic syndrome.

Morinaga, et al. of Kobe Pharmaceutical University reported that they have evaluated the analgesic action of *Belancandae Rhizoma* in mice and isolated the active ingredient of hydroxytectorigenin.

Morikawa, et al. of Kinki University reported that they have evaluated the action of *Picrorrhizae Rhizoma* on the inhibition of hepatic impairment in mice and isolated the active ingredients of plantamajoside and isoplantamajoside.

Joan, et al. of Kyoto University reported that the oral administration of Cinnamon Bark powder to mice with gastric ulcers induced by ethanol and hydrochloric acid have shown that Cinnamon Bark has effects on the prevention of gastric ulcers.

Muroga, et al. of Kanazawa University have evaluated the in vitro anti-inflammatory action of *Lycii Cortex* and identified active substances of (10*E*, 12*Z*, 15*Z*)-9-hydroxy-10, 12, 15-octadecatrietic acid that inhibit the histamine release from basophilic leukocytes.

Yonekura, et al. of Meijo University reported of the inductive action of regulatory T cells of *juzentaihoto* (Ten Strong Tonic Herbs Decoction), clarifying that not only CD4⁺CD25⁺ T cells but also CD4⁻ cells are involved in this action.