[*Natural Medicines*, **55**, 139-142(2001)] [Lab. of Herbal Garden]

Drying Method of Medicinal Plants for the Quality Control of Crude Drugs (1): Numerical Evaluation of Surface Color and Commercial Value.

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For medicinal plants, *Houttuynia cordata*, *Geranium thunbergii*, *Prunella vulgaris* var. *lilacina* and *Gardenia jasminoides* were dried under various conditions, and evaluated according to their numerical surface color and the content of each chemical indicator. The leaves of *H. cordata* dried by dehumidifying at 30°C showed the most vivid yellowish green and the highest content of quercitrin. For the leaves of *G. thunbergii*, shade drying in the open was not appropriate method as the color of the leaves changed to brown and as the geraniin content was deceased by half. The freeze-dried spike of *P. vulgaris* var. *lilacina* showed the highest content of rosmarinic acid. The unsuitable methods for the fruit of *G. jasminoides* were freeze-drying, dehumidifying at 30°C, and through-flow drying at 50°C because the fruits turned black and the content of geniposide was diminished.

[*Natural Medicines*, **55**, 153 (2001)] [Lab. of Herbal Garden]

Pharmacognostical Evaluation of Arctii Fructus (4): Chemical Constituents from Fruits of *Arctium tomentosum*.

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Only the fruit of *Arctium lappa* has been provided as the originating of Arctii Fructus in the Chinese Pharmacopoeia. But, the fruit of *A. tomentosum* has been used interchangeably with the fruit of *A. lappa* as folk medicine. We reported the chemical similarity between the fruit of *A. tomentosum* and that of *A. lappa* by HPLC profile obtained as the main component of arctiin. Therefore our further investigation of their phytochemical analysis has been carried out on the fruit of *A. tomentosum*, and has resulted in the isolation of six lignans and two steroids. This is the first report on the isolation of these seven compounds expect arctiin from the fruit of *A. tomentosum*.

[*Ecol. Civil Eng.*, **4**, 81-86 (2001)] [Lab. of Herbal Garden]

Damage of Subalpine Zone Plant Communities in Mt . Norikuradake After Disturbance by a Typhoon Attack.

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An investigation was carried out on the extent of damage caused by typhoon 7 on the subalpine coniferous forest in Mt. Norikuradake, central Japan, in 1998. It has been confirmed that sizable amounts of trees were found fallen, on the northwest slope of Nekodake (2200-2350m), particularly at 3 spots of 0.9 ha, 1.1 ha. and 2.6 ha. According to the belt-transect survey, many canopies of coniferous trees such as *Abies mariesii*, *A. vetichii* and *Picea jezoensis* var. *hondoensis*, were blown of by the typhoon. However, damage on samplings was slight. Still, many trees were uprooted by the strong southwest wind and resultantly lay perpendicularly to the direction of the slope. As for the forest stands covered with *Sasa senanensis*, it is better to leave them as they are because it is precisely on these sites that the fallen trees are able to flourish and regenerate themselves.

[*Mutagenesis.*, **16**, 377-383 (2001)] [Lab. of Radiochemistry]

Lack of changes in the levels of liver and kidney cytochrome P-450 isozymes in *p53*(+/-)knockout mice treated with *N*-butyl-*N*-(4-hydroxybutyl)nitrosamine.

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To determine the influence of *p53* deficiency on metabolic activation of *N*-butyl-*N*-(4-hydroxybutyl)nitrosamine (BBN) and levels of cytochrome P450 (CYP) isozymes, *p53* (+/-) knockout, wild-type and C57BL/6 mice were administered 0.025% BBN. BBN treatment caused a slight decrease in *N*-butyl-*N*-(3-carboxypropyl)nitrosamine (BCPN) formation in the livers of C57BL/6 mice, but there was no significant difference in BCPN formation between *p53* knockout, wild-type and C57BL/6 mice. In kidney BCPN formation in *p53* knockout mice was 33-46% less than that in wild-type mice. There was no significant variation in levels of liver CYP1A2, 2B9/10, 2E1 and 3A11/13 and kidney CYP2E1 and 3A11/13 among the four groups. BBN and BCPN were not mutagenic for strain TA100 with or without liver S9 from untreated mice and BBN-treated *p53* knockout mice. In conclusion, *p53* deficiency and BBN had no enhancing effects on metabolism of BBN, its mutagenicity and CYP levels in liver and kidney.