Preliminary study of Pueraria mirifica in Japanese.

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Material : Pueraria mirifica powder from Kanjanaburi Province, Thailand

Volunteer : Female 50 cases (Age varied during 20-49 years)

Dosage used : 100-600 mg PM powder / day

Taking Time : Any time

Period of Taking : 2 weeks after menstruation finished for 7 days

Menstrual cycle : 28-31 days

Normal Value of result : Normal value for female

Data collection : middle of February – 1st week of August 1999

Table 1 Female volunteers information

Age (Yr.)	Cases	Single	Married
20	24	22	2
30	16	3	13
40	10	2	8

Table 2 Effects of PM taken orally on red blood cell count (n = 50; Age 20-49; dose 100-600 mg/D 14 days) normal value for female RBC 380 – 490 x 10^4 /μl.

Pre-taking	Post-taking
430 –590 x 10^4 /μl	450 – 580 x 10^4 /μl

Table 3 Effects of PM taken orally on white blood cell count (n = 50; Age 20-49;dose 100-600 mg/D 14 days) normal value for female WBC 4100-8200 /μl.

Pre-taking	Post-taking
4200 – 6700/μl	4100 – 6600 /μl

Table 4 Effects of PM taken orally on blood platelets (n = 50; Age 20-49;dose 100-600 mg/D 14 days) normal value of blood platelets 1.25 – 37.5 10^4 /μl.

Pre-taking	Post-taking
13 –35 x 10^4 /μl	14 – 38 x 10^4 /μl

Table 5 Effects of PM taken orally on hemoglobin content normal value of hemoglobin 11.3 – 14.9 g/dl.

Pre-taking	**Post-taking**
10 – 15 g/dl	10 –14 g/dl

Table 6 Effects of PM taken orally on hematocrit normal value of hematocrit 34 – 45 %

Pre-taking	**Post-taking**
31 – 40 %	32 – 43 %

Table 7 Effects of PM taken orally on various kinds of white blood cells.

WBC (normal value %)	Pre-taking	Post-taking
Neutrophil		
- non – segmented (45 –66 %)	46-61 %	50 – 65 %
- segmented (1 – 7 %)	0.7 –6.8 %	0.8 – 6.4 %
Eosinophil (0.2 – 2 %)	0.1 – 1.3 %	0.2 – 1.2 %
Basophil (0 – 1 %)	0 – 0.7 %	0 – 0.5 %
Lymphocyte (27 – 40 %)	33 – 42 %	32 – 47 %
Monocyte (2 – 8 %)	3.3 – 7.5 %	5.1 – 8.7 %

Table 8 Effects of PM taken orally on blood chemistry and liver function

Serum examination (normal value)	Pre-taking	Post-taking
Total protein (6.7 – 8.3 g /dl)	6.9 – 8.8	7.0 – 8.8
Total cholesterol (130 – 250 mg/dl)	120 –220	130 – 200
Triglyceride (35 – 130 mg/dl)	40 – 110	25 –100
GOT (8 – 40 karmen)	15 – 32	10 – 35
GOT (5 – 35 karmen)	4 – 36	5 - 32
r – GPT		
- no drinking gr. (6 – 29 u/l)	16 – 30	11 – 28
- drinking gr. (6 – 122 u/l)		
Sodium (135 – 147 mEq/l)	normal value	normal value
Potassium (3.3 – 4.8 mEq/l)	normal value	normal value
Chloride (98 – 108 mEq/l)	normal value	normal value
Calcium (4.2 – 5.1 mEq/l)	normal value	normal value
Total phosphate (6 – 18 mg/dl)	normal value	normal value

Table 9 Effects of PM taken orally on kidney function

Kidney examination (normal value)	Pre – taking	Post – taking
Total urine volume (600 – 1600 ml / 24 hr.)	890 – 2100	930 – 1940
specific gravity (urine) (1.006 – 1.022)	1.011 – 1.019	1.004 – 1.023
urine pH (4.8 – 7.5)	5.9 – 7.7	5.5 – 6.5
creatinine clearance (57 – 78 ml / min)	49 – 66	52 – 71

Table 10 Effects of PM taken orally on female hormones

Hormones examination (normal value)	**Pre – taking**	**Post – taking**
Estrogen in serum		
- follicular phase (20 – 40 pg./ml.)	18 – 34	
- ovulation phase (150 – 400 pg./ml)		267 – 313
- luteal phase (100 – 300 pg./ml)		129 – 231
urine estrogen		
- E_1(3.0 – 17.6 μg / 24 hr.)	3.6 – 16.3	2.9 – 15.5
- E_2(0.7 – 9.0 μg / 24 hr.)	0.6 – 8.1	0.8 – 7.6
- E_3(3.0 – 26.8 μg / 24 hr.)	3.2 – 27.1	3.5 – 24.9
urine pregnanediol (< 2 mg / 24 hr)	< 2	< 2

Table 11 Effects of PM taken orally on breast size changing and its side effects

Age	Cases	Breast size changing			Side effects		
		No change	Enlargement	Significant Change	Headache	Vomiting	Dizzy
20	24	6 (25%)	13 (54%)	5 (21%)	1 (4%)	0 (0%)	1 (4%)
30	16	5 (31%)	9 (56%)	2 (13%)	0 (0%)	0 (0%)	1 (6%)
40	10	3 (30%)	5 (50%)	2 (20%)	1 (10%)	1 (10%)	1 (10%)
	50	14 (28%)	27 (54%)	9 (18%)	2 (4%)	1 (2%)	3 (6%)

Table 12 Effects of PM taken orally on menstruation after taking

Age	Cases	Effects on menstruation change		
		No change	Before expected data	Late expected data
20	24	20	1(4% : 1 day)	3 (13% : 2 – 3 days)
30	16	14	0 (0%)	2 (13% : 2 – 4 days)
40	10	10	0 (0%)	0 (0%)
	50	44 (88%)	1 (2%)	5 (10%)

Some chemical constituents in Pueraria mirifica compared with yellow soybean

Chemicals	Results		Limitation of detection	Assay for analysis
	PM	Yellow soybean		
Daidzein	8.8 mg / 100 g.	1.8 mg / 100 g.	0.5 mg / 100 g. powder	Fluid chromatography
Daidzin	14 mg / 100 g.	42 mg / 100 g.	0.5 mg / 100 g. powder	Fluid chromatography
Genistein	2.5 mg / 100 g.	2.5 mg / 100 g.	0.5 mg / 100 g. powder	Fluid chromatography
Genistin	3.7 mg / 100 g.	59 mg / 100 g.	0.5 mg / 100 g. powder	Fluid chromatography
Puerarin	86 mg / 100 g.	Not detected	0.5 mg / 100 g. powder	Fluid chromatography

Some chemical constituents in Pueraria lobata

Chemicals	Results	Limitation for detection	Analytical assay
Daidzein	Can’t detect	0.5 mg / 100 g powder	Chromatography
Daidzin	Can’t detect	0.5 mg / 100 g powder	Chromatography
Genistein	Can’t detect	0.5 mg / 100 g powder	Chromatography
Genistin	Can’t detect	0.5 mg / 100 g powder	Chromatography
Puerarin	Can’t detect	0.5 mg / 100 g powder	Chromatography