

Figure 1 黃芩湯檢品溶液指標成分 Baicalin、Paeoniflorin 及 Glycyrrhizic acid 在製劑中之高效液相層析(HPLC)圖。

(1)空白溶液

(2)定量黃芩湯指標成分之標準品混合液

(3)黃芩湯檢品溶液

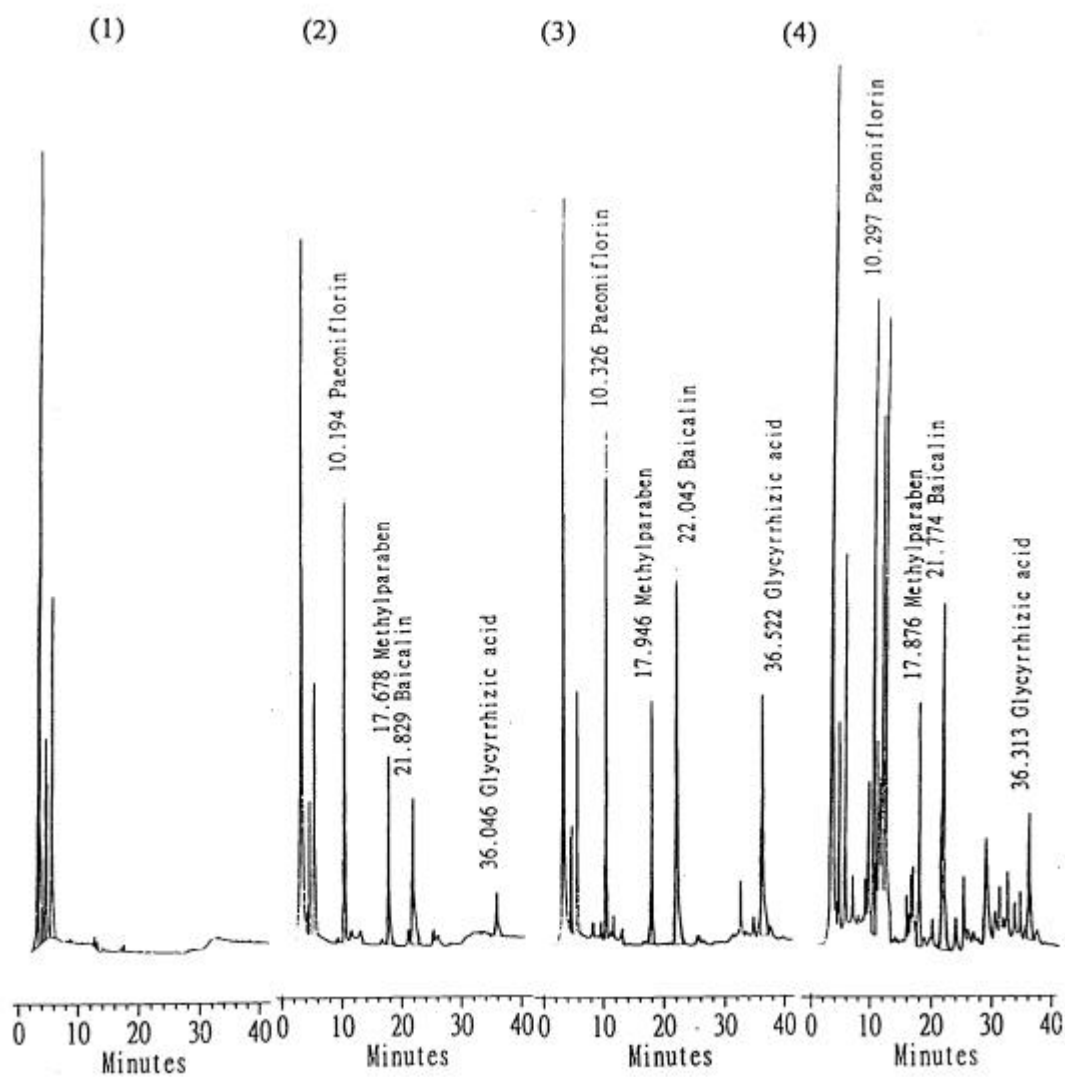


Figure 2 黃芩湯指標成分 Baicalin、Paeoniflorin 及 Glycyrrhizic acid 在血漿檢品中之高效液相層析(HPLC)圖。

(1)空白血漿

(2)在空白血漿中之 methylparaben 及黃芩湯之指標成分

(3)家兔在靜脈注射指標成分後之血漿檢品

(4)家兔在靜脈注射黃芩湯注射液後之血漿檢品

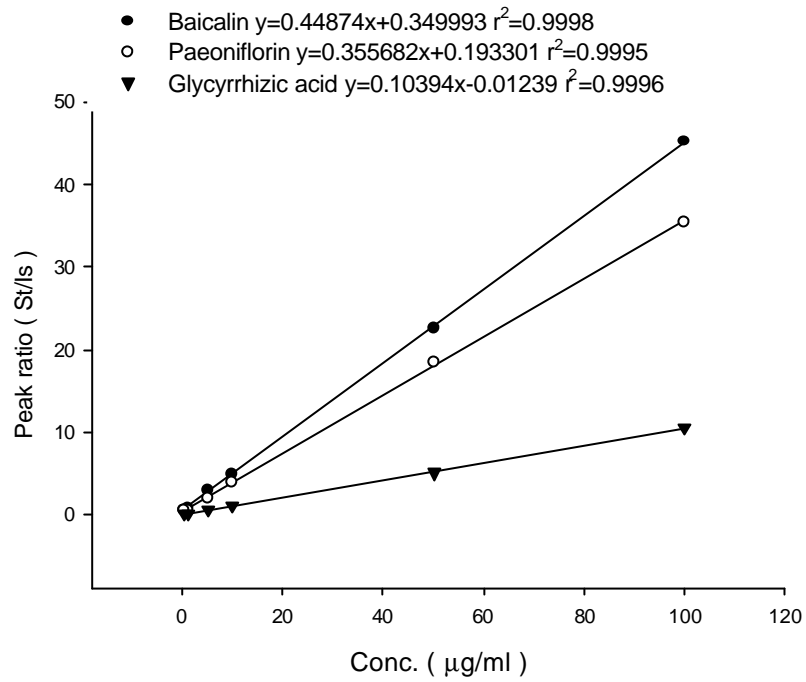


Figure 3 黃芩湯製劑中 Baicalin、Paeoniflorin 及 Glycyrrhizic acid 定量標準曲線( 0.5-100µg/ml )

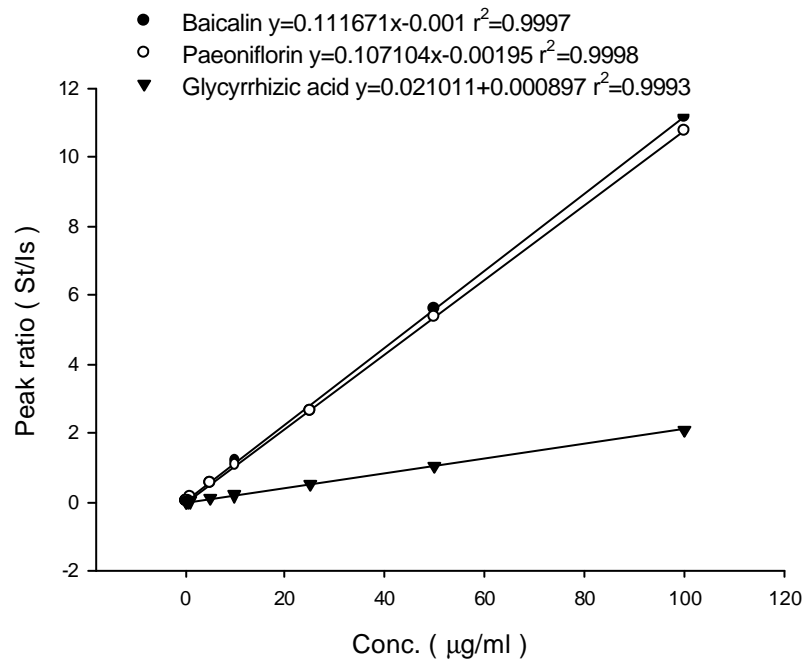


Figure 4 Baicalin、Paeoniflorin 及 Glycyrrhizic acid 在家兔血漿中之定量標準曲線( 0.05-100µg/ml )

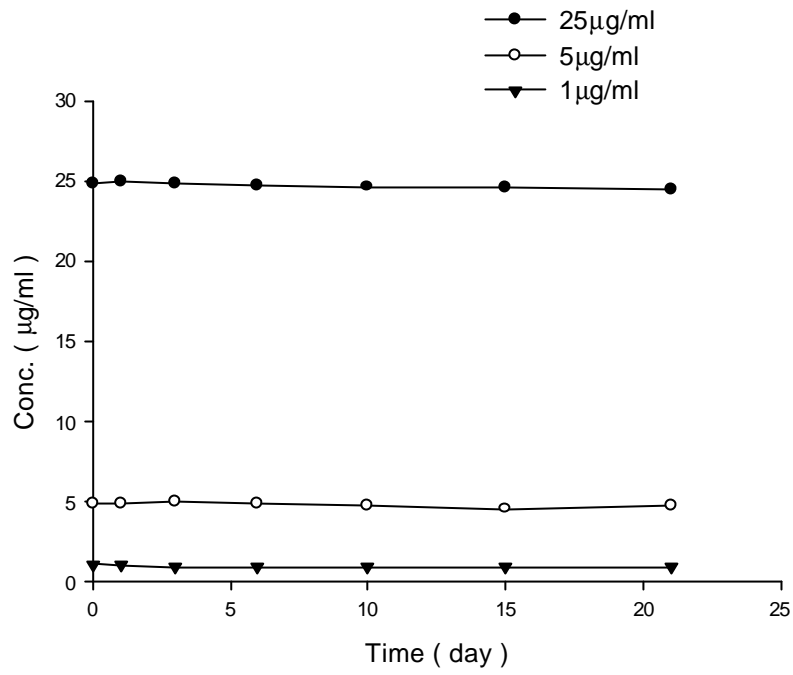


Figure 5 Baicalin 在家兔血漿中於 30 之安定性試驗

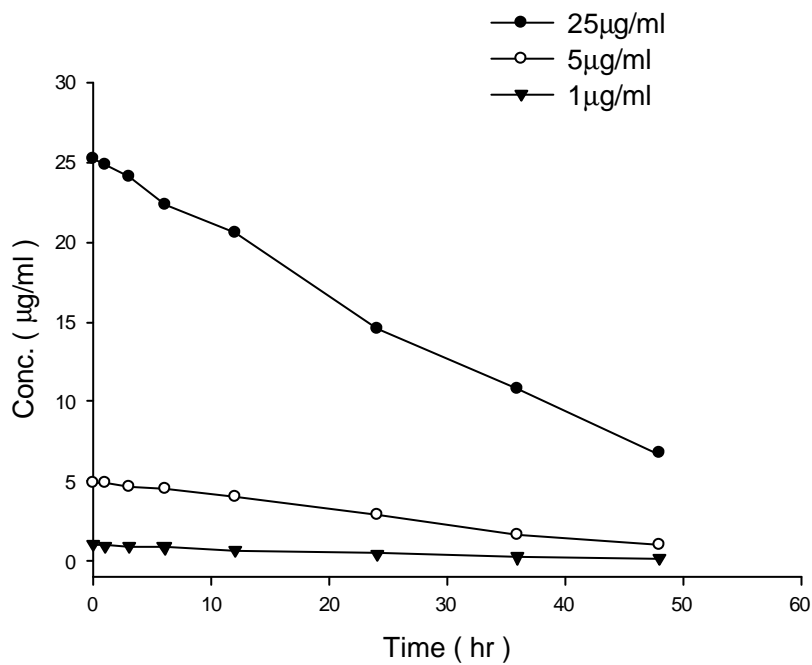


Figure 6 Baicalin 在家兔血漿中於 37 之安定性試驗

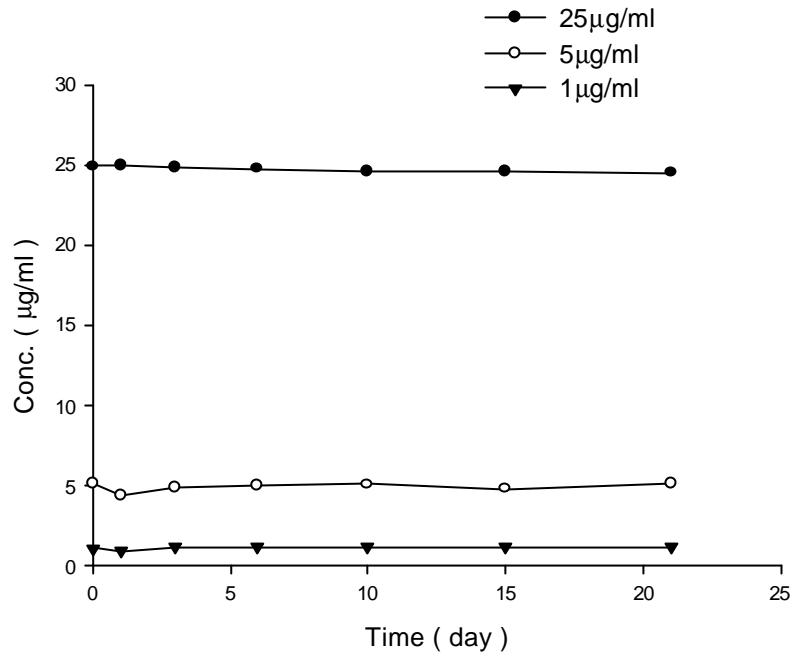


Figure 7 Paeoniflorin 在家兔血漿中於-30 之安定性試驗

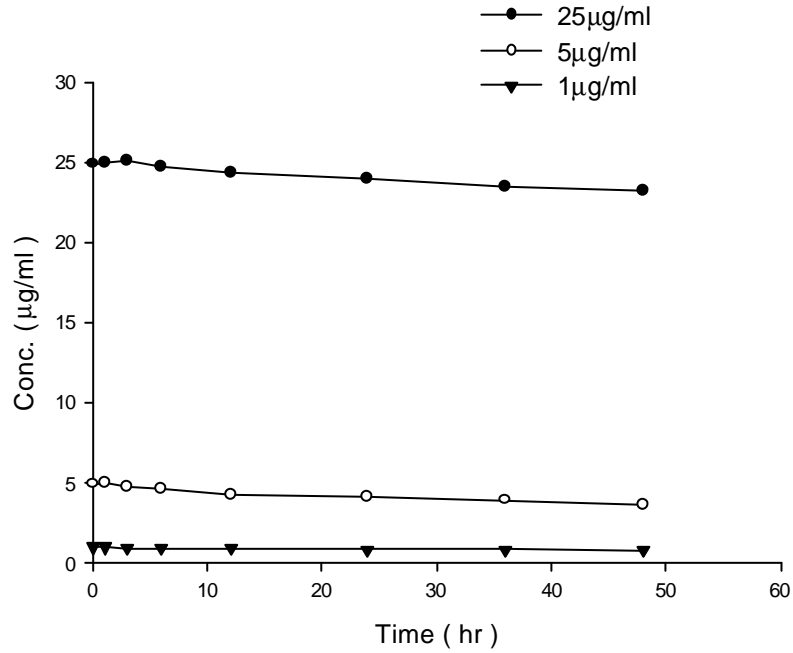


Figure 8 Paeoniflorin 在家兔血漿中於 37 之安定性試驗

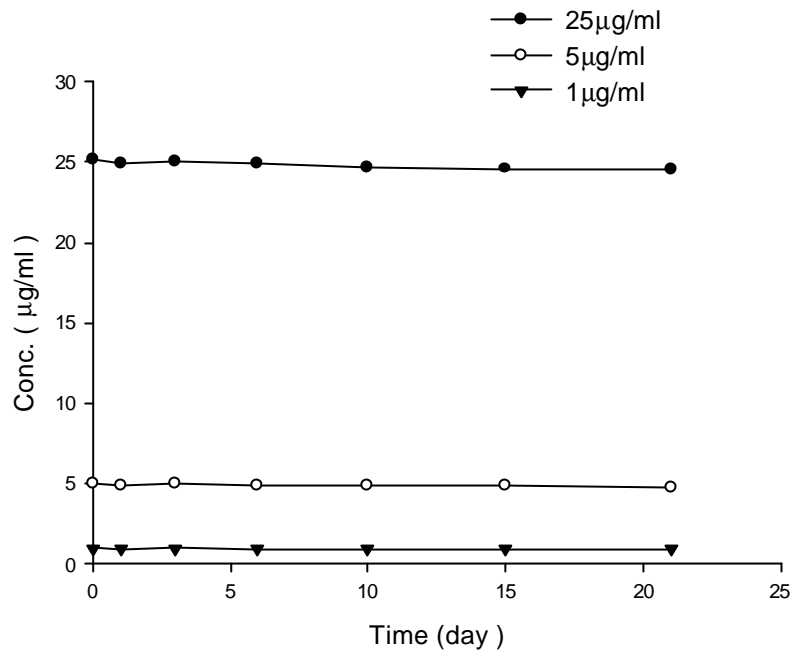


Figure 9 Glycyrrhizic acid 在家兔血漿中於-30 之安定性試驗

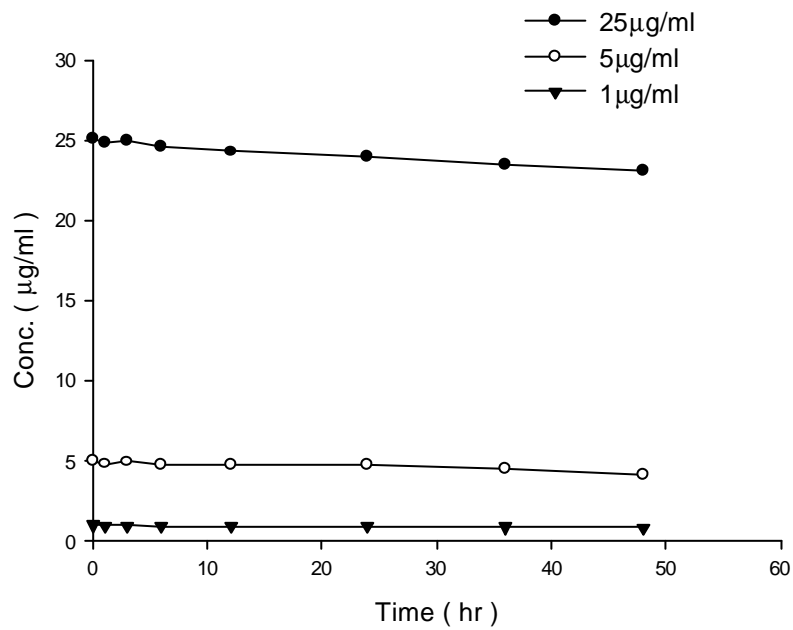


Figure 10 Glycyrrhizic acid 在家兔血漿中於 37 之安定性試驗

Table 6 Baicalin, Paeoniflorin 及 Glycyrrhizic acid 在家兔血漿中定量分析之回收率(Recovery)試驗

Recovery Test (%)			
Conc. (µg/ml)	Baicalin Recovery	Paeoniflorin Recovery	Glycyrrhizic acid Recovery
100	89.33	83.25	90.33
50	88.91	82.17	90.45
25	87.42	82.21	91.25
10	87.20	82.14	89.73
5	88.58	86.17	87.62
1	86.97	81.63	90.45
0.5	88.31	79.18	88.55
0.1	85.30	80.74	87.82
0.05	84.73	80.16	85.78
Mean	87.42	81.96	89.34
S.D	1.58	2.00	2.08
C.V(%)	1.81	2.44	2.33

Table 7 Baicalin 在家兔血漿中之同日內(Intraday)確效性試驗

Conc. ( $\mu\text{g/ml}$ )	1	2	3	Mean	S.D.	C.V. (%)	Error (%)
25	25.478	25.888	26.620	25.566	0.686	2.68	2.26
	24.956	25.740	24.714				
1	1.106	1.123	1.019	1.053	0.061	5.76	5.30
	1.091	0.987	0.992				
0.05	0.054	0.045	0.047	0.049	0.003	6.71	2.00
	0.048	0.047	0.051				

Table 8 Baicalin 在家兔血漿中之異日內(Interday)確效性試驗

Conc. ( $\mu\text{g/ml}$ )	1		2		3		Mean	S.D.	C.V. (%)	Error (%)
25	25.478	24.956	24.975	24.987	24.980	25.511	25.386	0.649	2.56	1.54
	25.888	25.740	24.755	26.640	24.789	24.564				
	26.620	24.714	25.713	24.851	25.200	25.586				
1	1.106	1.091	0.968	1.011	1.066	1.120	1.050	0.062	5.94	5.00
	1.123	0.987	0.986	0.977	1.120	1.120				
	1.019	0.992	1.058	0.976	1.145	1.030				
0.05	0.054	0.048	0.048	0.051	0.048	0.058	0.051	0.004	7.70	2.11
	0.045	0.047	0.053	0.055	0.052	0.047				
	0.047	0.051	0.053	0.049	0.055	0.058				



Table 9 Paeoniflorin 在家兔血漿中之同日內(Intraday)確效性試驗

Conc. ( $\mu\text{g/ml}$ )	1	2	3	Mean	S.D.	C.V. (%)	Error (%)
25	26.800	24.854	25.219	25.335	0.834	3.29	1.34
	25.756	24.888	24.493				
1	1.156	1.199	1.152	1.132	0.086	7.64	13.15
	1.190	1.129	0.963				
0.05	0.053	0.051	0.049	0.051	0.002	4.47	2.00
	0.048	0.054	0.051				

Table10 Paeoniflorin 在家兔血漿中之異日內(Interday)確效性試驗

Conc. ( $\mu\text{g/ml}$ )	1		2		3		Mean	S.D.	C.V. (%)	Error (%)
25	26.800	24.756	25.833	25.890	25.352	25.068	25.260	0.574	2.27	1.04
	24.854	24.888	25.747	25.653	25.453	24.977				
	25.219	24.493	24.886	24.705	24.683	25.429				
1	1.156	1.190	1.150	1.139	1.066	1.120	1.121	0.063	5.65	12.09
	1.199	1.229	1.126	1.104	1.120	1.120				
	1.152	1.063	0.958	1.110	1.145	1.030				
0.05	0.053	0.048	0.049	0.049	0.053	0.048	0.052	0.002	4.75	4.00
	0.051	0.054	0.051	0.054	0.054	0.050				
	0.054	0.049	0.053	0.053	0.056	0.051				

Table 11 Glycyrrhizic acid 在家兔血漿中之同日內(Intraday)確效性試驗

Conc. (µg/ml)	1	2	3	Mean	S.D.	C.V. (%)	Error (%)
25	24.843	26.208	24.612	25.346	0.680	2.682	1.38
	25.433	24.888	26.093				
1	1.148	0.964	1.084	1.049	0.066	6.301	4.90
	1.040	0.992	1.065				
0.05	0.053	0.047	0.054	0.051	0.003	5.536	2.00
	0.050	0.048	0.052				

Table 12 Glycyrrhizic acid 在家兔血漿中之異日內(Interday)確效性試驗

Conc. (µg/ml)	1		2		3		Mean	S.D.	C.V. (%)	Error (%)
25	24.843	25.433	24.694	24.680	24.973	25.562	25.315	0.573	2.26	1.26
	26.208	24.888	25.549	24.979	25.344	25.429				
	24.612	26.093	25.279	26.059	24.668	25.085				
1	1.148	1.040	1.181	1.061	1.131	1.090	1.103	0.075	6.78	10.30
	0.964	0.992	1.214	1.215	1.081	1.006				
	1.084	1.065	1.149	1.172	1.083	1.171				
0.05	0.053	0.050	0.048	0.051	0.047	0.051	0.051	0.003	6.07	2.00
	0.047	0.048	0.052	0.054	0.054	0.056				
	0.054	0.052	0.048	0.045	0.054	0.052				

Table 13 Baicalin 定量的極限試驗(Limit of Quantitation)

Conc.	Test No.			Mean	S.D.	C.V.(%)	Error (%)
Expected	1	2	3				
( $\mu\text{g/ml}$ )	4	5	6				
100	104.251	101.035	98.546	101.456	2.313	2.28	1.46
	103.237	102.614	99.054				
50	49.376	49.968	51.227	50.620	0.968	1.91	1.24
	50.356	52.128	50.662				
25	25.886	25.561	25.038	25.274	0.375	1.49	1.09
	24.965	25.223	24.968				
10	9.682	9.954	10.547	10.160	0.446	4.39	1.60
	10.169	9.788	10.821				
5	5.032	4.867	4.812	4.920	0.163	3.31	1.60
	4.986	4.687	5.136				
1	1.003	0.989	1.106	1.043	0.093	8.89	4.30
	1.204	0.967	0.990				
0.5	0.502	0.486	0.485	0.494	0.010	1.94	1.20
	0.493	0.489	0.509				
0.1	0.121	0.097	0.099	0.107	0.009	8.47	7.00
	0.114	0.105	0.108				
0.05	0.054	0.048	0.053	0.051	0.002	4.89	1.67
	0.049	0.052	0.049				

Table 14 Paeoniflorin 定量的極限試驗(Limit of Quantitation)

Conc. Expected ( $\mu\text{g/ml}$ )	Test No.			Mean	S.D.	C.V. (%)	Error (%)
	1 4	2 5	3 6				
100	99.835 101.956	100.535 98.778	104.268 103.257	101.439	2.102	2.07	1.44
50	51.884 49.965	49.578 51.214	51.462 49.876	50.663	0.971	1.91	1.33
25	25.306 25.522	26.682 24.754	25.096 25.191	25.425	0.666	2.62	1.70
10	9.876 9.925	10.241 10.625	10.014 9.966	10.108	0.283	2.80	1.08
5	5.108 5.091	5.113 4.954	4.887 5.321	5.079	0.150	2.96	1.58
1	0.996 1.058	1.113 1.128	0.983 0.977	1.043	0.067	6.44	4.25
0.5	0.489 0.495	0.514 0.508	0.522 0.507	0.506	0.012	2.40	1.17
0.1	0.096 0.097	0.097 0.098	0.105 0.114	0.101	0.007	7.00	1.00
0.05	0.052 0.048	0.054 0.049	0.055 0.050	0.051	0.003	5.46	2.67

Table 15 Glycyrrhizic acid 定量的極限試驗(Limit of Quantitation)

Conc.	Test No.			Mean	S.D.	C.V. (%)	Error (%)
Expected ( $\mu\text{g/ml}$ )	1	2	3				
	4	5	6				
100	97.657 99.624	100.231 101.524	103.885 104.256	101.196	2.555	2.52	1.96
50	47.976 49.556	50.359 50.246	49.796 49.057	49.498	0.883	1.79	1.00
25	25.313 25.394	25.264 25.185	24.465 26.851	25.579	0.630	2.47	2.32
10	10.529 10.058	9.863 9.973	11.005 9.738	10.194	0.481	4.71	1.94
5	5.205 5.162	5.153 5.245	4.958 4.975	5.116	0.121	2.36	2.33
1	0.986 0.964	0.952 0.968	1.106 1.115	1.015	0.075	7.36	1.52
0.5	0.495 0.537	0.497 0.514	0.469 0.534	0.508	0.026	5.11	1.53
0.1	0.113 0.097	0.106 0.112	0.095 0.098	0.104	0.008	7.65	3.50
0.05	0.053 0.051	0.051 0.048	0.047 0.046	0.049	0.003	5.54	1.33

Table 16 Baicalin 在家兔血漿中於-30 之安定性試驗

Time	1 $\mu$ g/ml	5 $\mu$ g/ml	25 $\mu$ g/ml
0-day	1.137	4.966	24.865
1-day	1.057	4.932	25.030
3-day	0.982	5.047	24.903
6-day	0.977	4.893	24.756
10-day	0.929	4.772	24.694
15-day	0.963	4.605	24.623
21-day	0.954	4.769	24.537

Table 17 Baicalin 在家兔血漿中於 37 之安定性試驗

Time	1 $\mu$ g/ml	5 $\mu$ g/ml	25 $\mu$ g/ml
0-hr	1.054	4.968	25.163
1-hr	0.974	4.876	24.887
3-hr	0.945	4.632	24.135
6-hr	0.882	4.541	22.322
12-hr	0.693	4.029	20.634
24-hr	0.488	2.963	14.530
36-hr	0.265	1.651	10.836
48-hr	0.157	1.025	6.732

Table 18 Paeoniflorin 在家兔血漿中於-30 之安定性試驗

Time	1 $\mu$ g/ml	5 $\mu$ g/ml	25 $\mu$ g/ml
0-day	1.120	5.141	24.937
1-day	0.938	4.430	24.982
3-day	1.183	4.879	24.856
6-day	1.166	5.074	24.807
10-day	1.185	5.101	24.582
15-day	1.199	4.848	24.631
21-day	1.218	5.150	24.563

Table 19 Paeoniflorin 在家兔血漿中於 37 之安定性試驗

Time	1 $\mu$ g/ml	5 $\mu$ g/ml	25 $\mu$ g/ml
0-hr	1.038	4.965	24.937
1-hr	1.024	5.018	24.985
3-hr	0.983	4.832	25.104
6-hr	0.962	4.654	24.783
12-hr	0.931	4.320	24.356
24-hr	0.893	4.128	24.037
36-hr	0.884	3.982	23.504
48-hr	0.852	3.647	23.226

Table 20 Glycyrrhizic acid 在家兔血漿中於-30 之安定性試驗

Time	1 $\mu$ g/ml	5 $\mu$ g/ml	25 $\mu$ g/ml
0-day	0.983	5.032	25.127
1-day	0.955	4.925	24.936
3-day	0.976	4.958	25.035
6-day	0.944	4.862	24.877
10-day	0.936	4.883	24.682
15-day	0.942	4.905	24.603
21-day	0.923	4.792	24.536

Table 21 Glycyrrhizic acid 在家兔血漿中於 37 之安定性試驗

Time	1 $\mu$ g/ml	5 $\mu$ g/ml	25 $\mu$ g/ml
0-hr	1.021	5.024	25.115
1-hr	0.998	4.836	24.893
3-hr	1.015	4.972	25.002
6-hr	0.983	4.831	24.562
12-hr	0.956	4.802	24.294
24-hr	0.921	4.769	23.958
36-hr	0.903	4.524	23.434
48-hr	0.886	4.203	23.088



Table 22 六隻家兔靜脈注射 Baicalin 標準品(劑量 15.0 mg/kg)後之血漿中濃度值( $\mu\text{g/ml}$ )

Time (min)	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
2.5	22.253	23.920	26.581	23.632	27.066	24.249	24.617	1.846
5	14.985	17.521	20.279	18.021	21.529	17.556	18.315	2.305
10	8.908	8.241	5.422	6.729	10.335	7.727	7.894	1.709
15	3.286	3.374	3.225	3.298	4.989	2.336	3.418	0.861
20	1.693	1.773	1.238	1.593	3.005	1.886	1.865	0.601
30	0.773	0.840	1.248	0.986	1.201	1.311	1.060	0.226
45	0.528	0.549	0.840	0.551	0.654	0.734	0.643	0.125
60	0.124	0.132	0.149	0.134	0.154	0.192	0.148	0.024
90	0.094	0.102	0.103	0.098	0.092	0.094	0.097	0.005
120	0.059	0.063	0.058	0.065	0.071	0.076	0.065	0.007
150	0.052	0.058	0.054	0.060	0.063	0.061	0.058	0.004
180	0.050	0.052	0.051	0.055	0.057	0.050	0.053	0.003
210	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
240	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
300	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
360	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

N.D. are expressed as not detectable

Table 23 六隻家兔靜脈注射Paeoniflorin 標準品(劑量 5.0 mg/kg)後之  
血漿中濃度值( $\mu\text{g/ml}$ )

Time (min)	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
2.5	16.142	16.466	16.006	16.485	17.466	15.878	16.407	0.573
5	11.685	12.924	11.684	12.737	12.844	11.560	12.239	0.657
10	9.336	10.199	9.275	9.573	9.358	8.805	9.424	0.456
15	7.456	8.108	7.474	7.144	7.128	7.682	7.499	0.366
20	5.990	6.419	5.769	5.662	6.065	6.195	6.017	0.277
30	4.147	5.400	4.555	4.752	4.057	5.146	4.676	0.535
45	2.911	3.921	3.886	3.101	2.692	3.692	3.367	0.532
60	2.071	2.194	2.152	2.200	1.943	2.000	2.093	0.107
90	1.057	1.387	1.068	1.049	0.851	1.324	1.123	0.198
120	0.658	0.637	0.625	0.556	0.462	0.522	0.577	0.076
150	0.443	0.410	0.420	0.483	0.441	0.255	0.409	0.079
180	0.365	0.322	0.312	0.318	0.323	0.133	0.296	0.082
210	0.303	0.262	0.254	0.230	0.251	0.093	0.232	0.072
240	0.254	0.203	0.193	0.225	0.195	0.082	0.192	0.059
300	0.153	0.097	0.090	0.175	N.D.	0.063	0.116	0.047
360	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

N.D. are expressed as not detectable

Table 24 六隻家兔靜脈注射 Glycyrrhizic acid 標準品(劑量 10.0 mg/kg)後之血漿中濃度值( $\mu\text{g/ml}$ )

Time (min)	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
2.5	63.497	61.796	52.736	55.787	60.395	53.368	57.930	4.569
5	58.966	59.923	51.974	50.987	55.966	52.065	54.980	3.867
10	52.610	51.327	45.616	43.965	53.695	46.115	48.888	4.136
15	49.868	49.502	44.814	43.436	49.436	45.216	47.045	2.866
20	45.025	47.109	41.609	39.916	44.926	41.793	43.396	2.708
30	42.704	39.913	40.121	38.750	42.568	39.975	40.672	1.599
45	42.378	39.719	39.200	37.568	41.793	39.468	40.021	1.777
60	32.940	32.904	37.877	28.938	31.521	38.398	33.763	3.691
90	31.032	30.345	32.976	27.513	30.398	33.021	30.881	2.042
120	28.887	30.246	22.127	21.329	28.238	23.328	25.693	3.867
150	20.601	15.095	21.019	20.597	20.097	21.796	19.868	2.406
180	19.966	13.976	16.566	17.379	19.381	19.032	17.717	2.236
210	15.400	13.770	14.799	14.526	14.662	14.225	14.564	0.550
240	13.316	13.758	13.407	13.883	13.982	13.284	13.605	0.306
300	11.130	11.256	13.325	11.425	11.341	11.647	11.687	0.821
360	10.500	9.111	10.844	10.736	10.441	10.367	10.333	0.626

Table 25 六隻家兔以 Baicalin、Paeoniflorin 及 Glycyrrhizic acid 標準品靜脈注射後之平均血漿中濃度值( $\mu\text{g/ml}$ )

Time (min)	Baicalin	Paeoniflorin	Glycyrrhizic acid
2.5	24.617 $\pm$ 1.846	16.407 $\pm$ 0.573	57.930 $\pm$ 4.569
5	18.315 $\pm$ 2.305	12.239 $\pm$ 0.657	54.980 $\pm$ 3.867
10	7.894 $\pm$ 1.709	9.424 $\pm$ 0.456	48.888 $\pm$ 4.136
15	3.418 $\pm$ 0.861	7.499 $\pm$ 0.366	47.045 $\pm$ 2.866
20	1.865 $\pm$ 0.601	6.017 $\pm$ 0.277	43.396 $\pm$ 2.708
30	1.060 $\pm$ 0.226	4.676 $\pm$ 0.535	40.672 $\pm$ 1.599
45	0.643 $\pm$ 0.125	3.367 $\pm$ 0.532	40.021 $\pm$ 1.777
60	0.148 $\pm$ 0.024	2.093 $\pm$ 0.107	33.763 $\pm$ 3.691
90	0.097 $\pm$ 0.005	1.123 $\pm$ 0.198	30.881 $\pm$ 2.042
120	0.065 $\pm$ 0.007	0.577 $\pm$ 0.076	25.693 $\pm$ 3.867
150	0.058 $\pm$ 0.004	0.409 $\pm$ 0.079	19.868 $\pm$ 2.406
180	0.053 $\pm$ 0.003	0.296 $\pm$ 0.082	17.717 $\pm$ 2.236
210	N.D.	0.232 $\pm$ 0.072	14.564 $\pm$ 0.550
240	N.D.	0.192 $\pm$ 0.059	13.605 $\pm$ 0.306
300	N.D.	0.116 $\pm$ 0.047	11.687 $\pm$ 0.821
360	N.D.	N.D.	10.333 $\pm$ 0.626

Data are expressed as Mean  $\pm$  S.D.

N.D. are expressed as not detectable

Table 26 六隻家兔靜脈注射黃芩湯(劑量 13.55 mg/kg)後之血漿中 Baicalin 濃度值( $\mu\text{g/ml}$ )

Time (min)	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
2.5	12.312	13.417	10.173	11.904	15.559	14.616	12.997	1.949
5	7.398	9.183	6.729	8.074	11.300	9.467	8.692	1.646
10	1.456	2.572	3.819	2.387	4.585	3.444	3.044	1.124
15	0.841	1.855	1.657	1.083	2.561	1.802	1.633	0.611
20	0.566	0.826	0.664	0.754	1.186	0.632	0.771	0.223
30	0.356	0.639	0.414	0.452	0.685	0.424	0.495	0.134
45	0.152	0.363	0.215	0.273	0.423	0.302	0.288	0.098
60	0.126	0.173	0.117	0.137	0.289	0.135	0.163	0.065
90	0.067	0.150	0.101	0.094	0.162	0.082	0.109	0.038
120	0.054	0.125	0.068	0.063	0.118	0.064	0.082	0.031
150	N.D.	0.092	0.053	0.056	0.086	0.052	0.068	0.020
180	N.D.	0.073	N.D.	0.051	0.061	N.D.	0.062	0.011
210	N.D.	0.058	N.D.	N.D.	N.D.	N.D.	0.058	0.000
240	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
300	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
360	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

N.D. are expressed as not detectable

Table 27 六隻家兔靜脈注射黃芩湯(劑量 3.65 mg/kg)後之血漿中 Paeoniflorin 濃度值( $\mu\text{g/ml}$ )

Time (min)	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
2.5	16.485	15.046	13.304	15.026	14.888	14.504	14.876	1.025
5	14.266	15.346	10.926	11.576	13.661	13.903	13.280	1.686
10	10.661	8.358	9.260	8.967	9.528	9.432	9.368	0.761
15	5.455	6.091	6.246	6.759	7.923	5.698	6.362	0.888
20	5.185	4.709	5.667	5.273	6.032	5.189	5.343	0.455
30	3.419	3.167	3.821	3.229	4.024	3.469	3.522	0.337
45	1.947	1.882	2.438	1.684	3.011	1.267	2.038	0.610
60	1.113	1.125	1.501	1.227	1.379	1.175	1.253	0.155
90	0.480	0.505	0.739	0.551	0.680	0.426	0.564	0.122
120	0.290	0.319	0.342	0.429	0.523	0.243	0.358	0.102
150	0.177	0.236	0.308	0.263	0.409	0.122	0.253	0.101
180	0.098	0.207	0.222	0.179	0.257	0.083	0.174	0.070
210	0.066	0.167	0.203	0.171	0.158	0.065	0.138	0.058
240	N.D.	0.123	0.190	0.162	N.D.	N.D.	0.158	0.034
300	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
360	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

N.D. are expressed as not detectable

Table 28 六隻家兔靜脈注射黃芩湯(劑量 6.45 mg/kg)量後之血漿中 Glycyrrhizic acid 濃度值( $\mu\text{g}/\text{m l}$ )

Time (min)	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
2.5	45.972	40.665	48.484	39.658	43.607	43.607	43.666	3.274
5	34.158	35.252	40.957	33.451	36.069	37.802	36.282	2.750
10	30.926	25.332	35.216	29.620	25.919	27.164	29.030	3.716
15	20.45	21.588	27.679	28.114	22.089	23.150	23.845	3.259
20	18.177	17.642	27.25	25.827	18.051	18.918	20.978	4.350
30	17.995	15.068	27.291	16.786	15.418	16.158	18.119	4.612
45	16.613	12.606	23.972	15.297	12.899	13.518	15.817	4.278
60	16.171	12.236	17.200	14.822	12.520	13.121	14.345	2.049
90	12.147	11.478	17.737	13.810	11.745	12.308	13.204	2.364
120	11.119	10.842	12.788	12.584	11.094	11.626	11.676	0.826
150	10.764	10.580	10.799	10.781	10.826	11.345	10.849	0.258
180	9.886	9.111	9.661	10.032	9.323	9.770	9.630	0.350
210	8.879	8.107	8.625	8.142	8.296	8.693	8.457	0.319
240	7.768	7.006	7.796	7.304	6.969	7.512	7.393	0.362
300	7.127	6.401	6.222	5.985	6.550	6.864	6.525	0.419
360	5.852	4.929	5.088	4.109	5.044	4.936	4.993	0.555

Table 29 六隻家兔靜脈注射黃芩湯後之血漿中 Baicalin, Paeoniflorin 及 Glycyrrhizic acid 平均濃度值( $\mu\text{g/ml}$ )

Time (min)	Baicalin	Paeoniflorin	Glycyrrhizic acid
2.5	12.997 $\pm$ 1.949	14.876 $\pm$ 1.025	43.666 $\pm$ 3.274
5	8.692 $\pm$ 1.646	13.280 $\pm$ 1.686	36.282 $\pm$ 2.750
10	3.044 $\pm$ 1.124	9.368 $\pm$ 0.761	29.030 $\pm$ 3.716
15	1.633 $\pm$ 0.611	6.362 $\pm$ 0.888	23.845 $\pm$ 3.259
20	0.771 $\pm$ 0.223	5.343 $\pm$ 0.455	20.978 $\pm$ 4.350
30	0.495 $\pm$ 0.134	3.522 $\pm$ 0.337	18.119 $\pm$ 4.612
45	0.288 $\pm$ 0.098	2.038 $\pm$ 0.610	15.817 $\pm$ 4.278
60	0.163 $\pm$ 0.065	1.253 $\pm$ 0.155	14.345 $\pm$ 2.049
90	0.109 $\pm$ 0.038	0.564 $\pm$ 0.122	13.204 $\pm$ 2.364
120	0.082 $\pm$ 0.031	0.358 $\pm$ 0.102	11.676 $\pm$ 0.826
150	0.068 $\pm$ 0.020	0.253 $\pm$ 0.101	10.849 $\pm$ 0.258
180	0.062 $\pm$ 0.011	0.174 $\pm$ 0.070	9.630 $\pm$ 0.350
210	0.058 $\pm$ 0.000	0.138 $\pm$ 0.058	8.457 $\pm$ 0.319
240	N.D.	0.158 $\pm$ 0.034	7.393 $\pm$ 0.362
300	N.D.	N.D.	6.525 $\pm$ 0.419
360	N.D.	N.D.	4.993 $\pm$ 0.555

Data are expressed as Mean

N.D. are expressed as not detectable



Table 30 六隻家兔口服黃芩湯(劑量 143.89 mg/kg)後之血漿中  
Baicalin 濃度值( $\mu\text{g/ml}$ )

Time (min)	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
10	N.D.	N.D.	0.072	N.D.	N.D.	N.D.	0.072	0.000.
20	0.171	0.166	0.165	0.188	0.161	0.192	0.174	0.013
30	0.204	0.198	0.196	0.223	0.291	0.229	0.224	0.036
45	0.317	0.308	0.403	0.459	0.419	0.356	0.377	0.060
60	0.23	0.223	0.232	0.264	0.262	0.258	0.245	0.018
90	0.207	0.201	0.163	0.185	0.234	0.232	0.204	0.027
120	0.183	0.178	0.156	0.177	0.190	0.206	0.182	0.016
150	0.174	0.169	0.149	0.169	0.155	0.195	0.169	0.016
180	0.158	0.124	0.144	0.163	0.121	0.144	0.142	0.017
210	0.121	0.108	0.137	0.155	0.110	0.136	0.128	0.018
240	0.082	0.080	0.124	0.140	0.079	0.104	0.102	0.026
270	0.063	0.061	0.110	0.124	0.067	0.080	0.084	0.027
300	0.062	0.060	0.085	0.096	0.066	0.076	0.074	0.014
360	N.D.	0.053	0.069	0.078	0.058	0.063	0.064	0.010
420	N.D.	N.D.	0.062	0.070	N.D.	0.051	0.061	0.010
480	N.D.	N.D.	N.D.	0.065	N.D.	N.D.	0.065	0.000.
540	N.D.	N.D.	N.D.	0.056	N.D.	N.D.	0.056	0.000
600	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
660	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
720	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

N.D. are expressed as not detectable

Table 31 六隻家兔口服黃芩湯(劑量 60.97 mg/kg)後之血漿中  
Paeoniflorin 濃度值( $\mu\text{g/ml}$ )

Time (min)	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
10	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
20	0.130	0.168	0.113	0.088	0.125	0.112	0.123	0.027
30	0.173	0.236	0.151	0.186	0.166	0.203	0.186	0.030
45	0.218	0.288	0.163	0.210	0.209	0.229	0.220	0.040
60	0.295	0.315	0.209	0.299	0.283	0.326	0.288	0.042
90	0.320	0.405	0.296	0.366	0.307	0.399	0.349	0.048
120	0.472	0.576	0.474	0.464	0.453	0.506	0.491	0.045
150	0.520	0.644	0.514	0.666	0.499	0.726	0.595	0.096
180	0.733	0.798	0.689	0.785	0.703	0.859	0.761	0.065
210	0.631	0.636	0.599	0.661	0.605	0.721	0.642	0.045
240	0.536	0.546	0.529	0.575	0.514	0.627	0.555	0.041
270	0.448	0.464	0.504	0.502	0.430	0.547	0.483	0.043
300	0.421	0.435	0.380	0.486	0.404	0.530	0.443	0.055
360	0.351	0.355	0.301	0.445	0.366	0.485	0.384	0.068
420	0.249	0.309	0.219	0.422	0.308	0.460	0.328	0.095
480	0.203	0.208	0.160	0.341	0.275	0.372	0.260	0.084
540	0.185	0.196	0.152	0.307	0.243	0.335	0.236	0.072
600	0.175	0.171	0.103	0.237	0.168	0.259	0.185	0.056
660	0.148	0.154	0.060	0.195	0.138	0.213	0.151	0.053
720	0.122	0.118	N.D.	0.14	0.100	0.153	0.127	0.020

N.D. are expressed as not detectable

Table 32 六隻家兔口服黃芩湯(劑量 110.55 mg/kg)後之血漿中  
Glycyrrhizic acid 濃度值( $\mu\text{g/ml}$ )

Time (min)	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
10	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
20	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
30	0.125	0.231	0.153	0.165	0.133	0.188	0.166	0.039
45	0.131	0.242	0.164	0.203	0.159	0.264	0.194	0.052
60	0.455	0.841	0.501	0.564	0.483	0.482	0.554	0.145
90	0.603	1.114	0.692	1.231	0.841	0.871	0.892	0.241
120	1.485	2.743	1.604	1.524	1.576	1.733	1.778	0.481
150	1.772	3.273	1.912	1.846	1.881	2.388	2.179	0.579
180	1.980	3.657	2.534	2.133	2.102	2.904	2.552	0.640
210	2.192	4.049	2.845	2.251	2.327	3.121	2.798	0.716
240	2.470	4.364	3.210	2.512	2.557	3.814	3.155	0.792
270	2.409	4.751	3.566	2.764	2.622	4.422	3.422	0.989
300	2.900	5.358	4.104	3.198	3.082	3.985	3.771	0.921
360	2.670	4.933	3.745	2.953	2.838	3.462	3.434	0.838
420	2.375	4.359	3.254	2.542	2.524	3.095	3.025	0.741
480	2.203	3.871	3.098	2.243	2.342	2.773	2.755	0.648
540	2.109	3.417	2.597	2.094	2.242	2.498	2.493	0.497
600	1.535	2.502	1.898	1.468	1.632	2.119	1.859	0.398
660	1.143	2.022	1.521	1.328	1.215	1.438	1.445	0.315
720	1.056	2.042	1.364	1.286	1.123	1.256	1.355	0.355

N.D. are expressed as not detectable

Table 33 六隻家兔口服黃芩湯後之血漿中 Baicalin、Paeoniflorin 及 Glycyrrhizic acid 平均濃度值( $\mu\text{g/ml}$ )

Time (min)	Baicalin	Paeoniflorin	Glycyrrhizic acid
10	$0.072 \pm 0.000$	N.D.	N.D.
20	$0.174 \pm 0.013$	$0.123 \pm 0.027$	N.D.
30	$0.224 \pm 0.036$	$0.186 \pm 0.030$	$0.166 \pm 0.039$
45	$0.377 \pm 0.060$	$0.220 \pm 0.040$	$0.194 \pm 0.052$
60	$0.245 \pm 0.018$	$0.288 \pm 0.042$	$0.554 \pm 0.145$
90	$0.204 \pm 0.027$	$0.349 \pm 0.048$	$0.892 \pm 0.241$
120	$0.182 \pm 0.016$	$0.491 \pm 0.045$	$1.778 \pm 0.481$
150	$0.169 \pm 0.016$	$0.595 \pm 0.096$	$2.179 \pm 0.579$
180	$0.142 \pm 0.017$	$0.761 \pm 0.065$	$2.552 \pm 0.640$
210	$0.128 \pm 0.018$	$0.642 \pm 0.045$	$2.798 \pm 0.716$
240	$0.102 \pm 0.026$	$0.555 \pm 0.041$	$3.155 \pm 0.792$
270	$0.084 \pm 0.027$	$0.483 \pm 0.043$	$3.422 \pm 0.989$
300	$0.074 \pm 0.014$	$0.443 \pm 0.055$	$3.771 \pm 0.921$
360	$0.064 \pm 0.010$	$0.384 \pm 0.068$	$3.434 \pm 0.838$
420	$0.061 \pm 0.010$	$0.328 \pm 0.095$	$3.025 \pm 0.741$
480	$0.065 \pm 0.000$	$0.260 \pm 0.084$	$2.755 \pm 0.648$
540	$0.056 \pm 0.000$	$0.236 \pm 0.072$	$2.493 \pm 0.497$
600	N.D.	$0.185 \pm 0.056$	$1.859 \pm 0.398$
660	N.D.	$0.151 \pm 0.053$	$1.445 \pm 0.315$
720	N.D.	$0.127 \pm 0.020$	$1.355 \pm 0.355$

Data are expressed as Mean

N.D. are expressed as not detectable

Table 34 六隻家兔靜脈注射 Baicalin 標準品(劑量 15.0 mg/kg )後之血漿中濃度值經 WINNONLIN 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
A (µg/ml)	31.10	34.86	42.76	35.72	38.10	36.44	36.50	3.85
B (µg/ml)	0.24	0.22	0.51	0.30	0.26	0.54	0.35	0.14
$\alpha$ (min <sup>-1</sup> )	0.141	0.148	0.182	0.158	0.130	0.163	0.154	0.018
$\beta$ (min <sup>-1</sup> )	0.008	0.007	0.008	0.008	0.007	0.010	0.008	0.001
AUC (µg·min/ml)	249.811	269.090	300.828	265.778	331.322	277.143	282.329	29.244
K <sub>10</sub> -HL (min)	5.53	5.32	4.82	5.11	5.99	5.20	5.33	0.40
$\alpha$ -HL (min)	4.91	4.69	3.82	4.38	5.34	4.25	4.56	0.53
$\beta$ -HL (min)	86.07	105.13	88.11	91.82	101.17	69.60	90.32	12.58
K <sub>10</sub> (min <sup>-1</sup> )	0.125	0.130	0.144	0.136	0.116	0.133	0.131	0.010
K <sub>12</sub> (min <sup>-1</sup> )	0.015	0.017	0.036	0.021	0.013	0.028	0.022	0.009
K <sub>21</sub> (min <sup>-1</sup> )	0.009	0.007	0.010	0.009	0.008	0.012	0.009	0.002
C <sub>max</sub> (µg/ml)	31.340	35.082	43.270	36.022	38.362	36.976	36.842	3.942
Volume (L)	1.149	1.026	0.867	1.166	1.173	1.217	1.100	0.131
CL (L/min)	0.144	0.134	0.125	0.158	0.136	0.162	0.143	0.015
MRT (min)	20.98	24.73	31.91	25.33	23.44	24.48	25.14	3.65
VD <sub>ss</sub> (L)	3.024	3.309	3.978	4.003	3.183	3.974	3.578	0.454

Table 35 六隻家兔靜脈注射 Baicalin 標準品(劑量 15.0 mg/kg )後之血漿中濃度值經 LAGRAN-P 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
$\lambda$ -z (min <sup>-1</sup> )	0.008	0.008	0.007	0.008	0.008	0.007	0.008	0.001
T <sub>1/2</sub> (min)	86.32	85.64	95.36	91.52	87.85	798.36	90.84	5.18
AUC <sub>0-360</sub> (µg·min/ml)	175.137	187.023	201.425	182.077	239.851	191.675	196.198	23.154
AUC <sub>0-∞</sub> (µg·min/ml)	181.365	193.449	208.443	189.341	247.077	198.771	203.074	23.393
CL (L/min)	0.083	0.077	0.072	0.079	0.061	0.075	0.075	0.008
MRT (min)	26.34	25.83	28.91	27.94	24.36	28.54	26.99	1.77
VD <sub>ss</sub> (L)	2.178	2.003	2.080	2.213	1.479	2.154	2.018	0.274

各藥動學參數說明請參閱附錄一

Table 36 六隻家兔靜脈注射 Paeoniflorin 標準品(劑量 5.0 mg/kg)後之血漿中濃度值經 WINNONLIN 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
A (µg/ml)	14.18	10.37	12.46	12.49	14.10	15.91	13.25	1.91
B (µg/ml)	11.47	10.59	10.15	8.66	10.52	10.95	10.39	0.96
$\alpha$ (min <sup>-1</sup> )	0.383	0.197	0.273	0.170	0.249	0.418	0.282	0.100
$\beta$ (min <sup>-1</sup> )	0.030	0.023	0.024	0.022	0.029	0.026	0.026	0.003
AUC (µg·min/ml)	417.575	504.260	462.271	460.591	417.088	465.717	454.584	33.053
K <sub>10</sub> -HL (min)	11.29	16.68	14.17	15.09	11.74	12.02	13.50	2.16
$\alpha$ -HL (min)	1.81	3.52	2.54	4.07	2.78	1.66	2.73	0.95
$\beta$ -HL (min)	23.00	29.56	28.44	30.98	23.74	27.07	27.13	3.19
K <sub>10</sub> (min <sup>-1</sup> )	0.061	0.042	0.049	0.046	0.059	0.058	0.052	0.008
K <sub>12</sub> (min <sup>-1</sup> )	0.164	0.068	0.113	0.064	0.096	0.200	0.117	0.055
K <sub>21</sub> (min <sup>-1</sup> )	0.188	0.111	0.136	0.083	0.123	0.186	0.138	0.042
C <sub>max</sub> (µg/ml)	25.648	20.959	22.616	21.156	24.627	26.863	23.645	2.441
Volume (L)	0.468	0.596	0.619	0.709	0.447	0.465	0.551	0.107
CL (L/min)	0.029	0.025	0.030	0.033	0.026	0.027	0.028	0.003
MRT (min)	30.47	38.73	37.35	38.51	30.15	36.06	35.21	3.91
VD <sub>ss</sub> (L)	0.876	0.960	1.131	1.254	0.795	0.968	0.997	0.168

Table 37 六隻家兔靜脈注射 Paeoniflorin 標準品(劑量 5.0 mg/kg)後之血漿中濃度值經 LAGRAN-P 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
$\lambda$ -z (min <sup>-1</sup> )	0.008	0.011	0.012	0.007	0.013	0.009	0.010	0.002
T <sub>1/2</sub> (min)	89.83	61.76	59.24	84.63	51.14	80.14	71.12	15.76
AUC <sub>0-360</sub> (µg·min/ml)	425.184	475.571	434.315	434.703	403.232	420.488	432.249	24.155
AUC <sub>0-∞</sub> (µg·min/ml)	446.017	484.215	442.008	451.771	407.954	427.773	443.290	25.477
CL (L/min)	0.011	0.010	0.011	0.011	0.012	0.012	0.011	0.001
MRT (min)	72.47	57.17	57.74	67.34	53.53	50.55	59.80	8.41
VD <sub>ss</sub> (L)	0.812	0.590	0.653	0.745	0.656	0.591	0.675	0.088

Table 38 六隻家兔靜脈注射 Glycyrrhizic acid 標準品(劑 10.0 mg/kg)  
後之血漿中濃度值經 WINNONLIN 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
A (µg/ml)	20.17	18.86	10.69	18.21	16.69	11.17	15.97	4.06
B (µg/ml)	49.03	47.98	47.44	42.60	45.87	47.96	46.81	2.31
$\alpha$ (min <sup>-1</sup> )	0.117	0.091	0.191	0.130	0.060	0.209	0.133	0.057
$\beta$ (min <sup>-1</sup> )	0.005	0.006	0.005	0.005	0.005	0.005	0.005	0.0003
AUC (µg·min/ml)	9793.51	8853.19	9433.77	9031.17	9810.24	9538.09	9409.99	394.409
K <sub>10</sub> -HL (min)	98.09	91.82	112.49	102.93	108.71	111.81	104.31	8.24
$\alpha$ -HL (min)	5.91	7.59	3.63	5.35	11.49	3.31	6.21	3.02
$\beta$ -HL (min)	136.01	124.92	137.04	144.65	144.08	137.07	137.30	7.14
K <sub>10</sub> (min <sup>-1</sup> )	0.007	0.008	0.006	0.007	0.006	0.006	0.007	0.001
K <sub>12</sub> (min <sup>-1</sup> )	0.031	0.022	0.033	0.035	0.013	0.037	0.029	0.009
K <sub>21</sub> (min <sup>-1</sup> )	0.085	0.067	0.157	0.092	0.046	0.171	0.103	0.050
C <sub>max</sub> (µg/ml)	69.204	66.836	58.128	60.817	62.550	59.130	62.777	4.395
Volume (L)	0.434	0.329	0.413	0.411	0.480	0.406	0.412	0.049
CL (L/min)	0.003	0.002	0.003	0.003	0.003	0.003	0.003	0.0003
MRT (min)	192.93	176.28	196.56	205.55	202.47	196.67	195.08	10.27
VD <sub>ss</sub> (L)	0.591	0.438	0.500	0.569	0.619	0.495	0.535	0.069

Table 39 六隻家兔靜脈注射 Glycyrrhizic acid 標準品(劑量 10.0 mg/kg)  
後之血漿中濃度值經 LAGRAN-P 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
$\lambda$ -z (min <sup>-1</sup> )	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.0004
T <sub>1/2</sub> (min)	197.80	201.80	201.81	228.32	218.16	232.85	213.45	15.07
AUC <sub>0-360</sub> (µg·min/ml)	8065.04	7643.59	7922.82	7326.24	7970.64	7931.61	7809.99	275.711
AUC <sub>0-∞</sub> (µg·min/ml)	11062.0	10296.4	11080.8	10863.4	11257.5	11414.9	10995.83	390.494
CL (L/min)	0.00090	0.00097	0.00090	0.00092	0.00089	0.00088	0.00091	0.00003
MRT (min)	269.29	262.60	281.20	315.80	289.57	303.34	286.97	20.23
VD <sub>ss</sub> (L)	0.243	0.255	0.253	0.291	0.257	0.266	0.261	0.017

Table 40 六隻家兔靜脈注射黃芩湯(劑量 13.55 mg/kg)後之血漿中 Baicalin 濃度值經 WINNONLIN 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
A (µg/ml)	22.71	21.70	14.23	19.57	22.92	23.18	20.72	3.44
B (µg/ml)	0.25	0.57	0.47	0.30	0.49	0.39	0.41	0.12
$\alpha$ (min <sup>-1</sup> )	0.247	0.201	0.156	0.201	0.161	0.192	0.193	0.033
$\beta$ (min <sup>-1</sup> )	0.009	0.012	0.012	0.010	0.010	0.014	0.011	0.002
AUC (µg·min/ml)	118.325	155.093	130.468	128.398	190.695	148.963	145.324	26.090
K <sub>10</sub> -HL (min)	3.57	4.83	6.16	4.48	5.65	4.38	4.84	0.93
$\alpha$ -HL (min)	2.81	3.45	4.56	3.46	4.31	3.60	3.70	0.64
$\beta$ -HL (min)	74.18	57.16	57.97	70.25	68.03	50.11	62.95	9.26
K <sub>10</sub> (min <sup>-1</sup> )	0.194	0.144	0.113	0.155	0.123	0.158	0.148	0.029
K <sub>12</sub> (min <sup>-1</sup> )	0.050	0.053	0.038	0.043	0.035	0.031	0.042	0.009
K <sub>21</sub> (min <sup>-1</sup> )	0.012	0.017	0.017	0.013	0.013	0.017	0.015	0.002
C <sub>max</sub> (µg/ml)	22.956	22.273	14.694	19.878	23.415	23.572	21.131	3.430
Volume (L)	1.299	1.643	2.029	1.500	1.273	1.265	1.501	0.299
CL (L/min)	0.252	0.235	0.228	0.232	0.156	0.200	0.217	0.034
MRT (min)	26.86	28.53	29.51	28.13	29.43	18.02	26.75	4.38
VD <sub>ss</sub> (L)	6.766	6.730	6.743	6.532	4.600	3.606	5.830	1.376

Table 41 六隻家兔靜脈注射黃芩湯(劑量 13.55 mg/kg)後之血漿中 Baicalin 濃度值經 LAGRAN-P 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
$\lambda$ -z (min <sup>-1</sup> )	0.014	0.008	0.009	0.008	0.011	0.010	0.010	0.002
T <sub>1/2</sub> (min)	49.07	82.01	75.02	83.35	64.04	66.85	70.06	12.89
AUC <sub>0-360</sub> (µg·min/ml)	66.763	105.723	82.674	84.050	133.979	96.657	94.974	23.265
AUC <sub>0-∞</sub> (µg·min/ml)	70.587	112.587	88.412	90.184	139.615	101.673	100.510	23.769
CL (L/min)	0.192	0.126	0.153	0.150	0.097	0.133	0.142	0.032
MRT (min)	25.68	48.04	35.43	41.52	33.93	29.03	35.60	8.17
VD <sub>ss</sub> (L)	4.930	5.781	5.429	6.238	3.293	3.869	4.923	1.139



Table 42 六隻家兔靜脈注射黃芩湯(劑量 3.65 mg/kg )後之血漿中  
Paeoniflorin 濃度值經 WINNONLIN 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
A (µg/ml)	16.77	16.80	9.11	13.18	12.04	15.38	13.88	3.03
B (µg/ml)	3.78	2.92	6.16	4.18	5.58	2.66	4.21	1.41
$\alpha$ (min <sup>-1</sup> )	0.094	0.092	0.088	0.087	0.080	0.078	0.086	0.006
$\beta$ (min <sup>-1</sup> )	0.020	0.016	0.023	0.021	0.021	0.019	0.020	0.002
AUC (µg·min/ml)	364.686	361.522	373.798	350.902	421.169	334.935	367.835	29.322
K <sub>10</sub> -HL (min)	12.30	12.70	16.97	14.01	16.57	12.87	14.24	2.05
$\alpha$ -HL (min)	7.41	7.53	7.86	7.97	8.70	8.88	8.06	0.61
$\beta$ -HL (min)	34.02	42.46	30.45	33.08	33.57	35.97	34.93	4.10
K <sub>10</sub> (min <sup>-1</sup> )	0.056	0.055	0.041	0.049	0.042	0.054	0.049	0.007
K <sub>12</sub> (min <sup>-1</sup> )	0.024	0.026	0.021	0.022	0.019	0.016	0.021	0.004
K <sub>21</sub> (min <sup>-1</sup> )	0.034	0.028	0.049	0.037	0.039	0.028	0.036	0.008
C <sub>max</sub> (µg/ml)	20.548	19.725	15.266	17.356	17.616	18.040	18.092	1.868
Volume (L)	0.515	0.537	0.526	0.463	0.456	0.445	0.490	0.040
CL (L/min)	0.029	0.029	0.021	0.023	0.019	0.024	0.024	0.004
MRT (min)	30.22	35.82	34.92	32.09	35.55	28.91	32.92	2.95
VD <sub>ss</sub> (L)	0.877	1.049	0.750	0.734	0.678	0.693	0.797	0.142

Table 43 六隻家兔靜脈注射黃芩湯(劑量 3.65 mg/kg )後之血漿中  
Paeoniflorin 濃度值經 LAGRAN-P 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
$\lambda$ -z (min <sup>-1</sup> )	0.016	0.013	0.026	0.009	0.014	0.014	0.015	0.006
T <sub>1/2</sub> (min)	42.15	54.65	36.71	78.54	51.26	47.89	51.87	14.56
AUC <sub>0-360</sub> (µg·min/ml)	316.122	304.978	345.521	315.872	377.600	297.271	326.227	30.036
AUC <sub>0-∞</sub> (µg·min/ml)	320.136	308.921	418.761	334.232	389.287	301.762	345.517	47.552
CL (L/min)	0.011	0.012	0.009	0.011	0.009	0.012	0.011	0.001
MRT (min)	34.59	35.47	40.65	57.86	47.14	34.04	41.63	9.38
VD <sub>ss</sub> (L)	0.394	0.419	0.836	0.632	0.442	0.412	0.523	0.177

Table 44 六隻家兔靜脈注射黃芩湯(劑量 6.45 mg/kg)後之血漿中  
Glycyrrhizic acid 濃度值經 WINNONLIN 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
A ( $\mu\text{g/ml}$ )	37.94	34.45	28.45	24.61	37.80	36.90	33.36	5.57
B ( $\mu\text{g/ml}$ )	18.46	14.71	29.03	17.85	15.29	15.87	18.54	5.35
$\alpha$ ( $\text{min}^{-1}$ )	0.141	0.108	0.149	0.064	0.117	0.108	0.114	0.030
$\beta$ ( $\text{min}^{-1}$ )	0.003	0.003	0.006	0.004	0.003	0.003	0.004	0.001
AUC ( $\mu\text{g}\cdot\text{min/ml}$ )	5573.69	5558.28	5126.69	5370.25	5594.65	5873.36	5516.15	249.726
$K_{10}\text{-HL}$ (min)	68.49	78.37	61.82	87.67	73.03	77.15	74.42	8.88
$\alpha\text{-HL}$ (min)	4.93	6.44	4.64	10.81	5.94	6.41	6.53	2.23
$\beta\text{-HL}$ (min)	199.12	246.79	117.86	193.64	238.86	241.70	206.33	48.96
$K_{10}$ ( $\text{min}^{-1}$ )	0.010	0.009	0.011	0.008	0.009	0.009	0.009	0.001
$K_{12}$ ( $\text{min}^{-1}$ )	0.086	0.067	0.066	0.031	0.074	0.068	0.065	0.018
$K_{21}$ ( $\text{min}^{-1}$ )	0.048	0.034	0.078	0.029	0.036	0.035	0.043	0.018
$C_{\text{max}}$ ( $\mu\text{g/ml}$ )	56.407	49.163	57.479	42.460	53.098	52.767	51.896	5.481
Volume (L)	0.252	0.380	0.247	0.410	0.352	0.354	0.333	0.068
CL (L/min)	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.000
MRT (min)	273.72	336.07	163.96	260.51	325.14	328.99	281.40	65.50
$VD_{\text{ss}}$ (L)	0.697	1.131	0.454	0.845	1.087	1.048	0.877	0.265

Table 45 六隻家兔靜脈注射黃芩湯(劑量 6.45 mg/kg)後之血漿中  
Glycyrrhizic acid 濃度值經 LAGRAN-P 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
$\lambda\text{-z}$ ( $\text{min}^{-1}$ )	0.003	0.003	0.004	0.004	0.003	0.003	0.003	0.001
$T_{1/2}$ (min)	246.32	215.46	195.32	155.22	217.12	199.64	204.85	30.22
$AUC_{0-360}$ ( $\mu\text{g}\cdot\text{min/ml}$ )	3926.43	3542.60	4454.83	3889.61	3616.23	3791.36	3870.18	323.533
$AUC_{0-\infty}$ ( $\mu\text{g}\cdot\text{min/ml}$ )	6006.49	5075.10	5888.86	4809.93	5196.55	5221.08	5366.33	474.798
CL (L/min)	0.00107	0.00127	0.00110	0.00134	0.00124	0.00123	0.00121	0.0001
MRT (min)	339.46	301.38	251.33	218.99	303.44	279.93	282.42	42.55
$VD_{\text{ss}}$ (L)	0.364	0.383	0.275	0.294	0.376	0.346	0.340	0.045

Table 46 六隻家兔口服黃芩湯(劑量 143.89 mg/kg )後之血漿中  
Baicalin 濃度值經 WINNONLIN 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
V/F (L)	714.262	745.095	824.993	751.980	574.603	676.530	714.577	84.336
K <sub>01</sub> (min <sup>-1</sup> )	0.040	0.041	0.050	0.062	0.042	0.044	0.047	0.008
K <sub>10</sub> (min <sup>-1</sup> )	0.007	0.007	0.005	0.004	0.008	0.006	0.006	0.001
AUC (μg·min/ml)	54.285	53.008	65.979	79.094	55.714	65.156	62.206	9.976
K <sub>01</sub> -HL (min)	17.30	16.87	13.84	11.22	16.45	15.65	15.22	2.31
K <sub>10</sub> -HL (min)	103.77	105.70	145.67	159.17	85.68	117.97	119.66	27.72
CL/F (L/min)	4.771	4.886	3.926	3.275	4.649	3.975	4.247	0.627
Tmax (min)	53.66	53.15	51.94	46.19	48.47	52.57	51.00	2.99
Cmax (μg/ml)	0.253	0.245	0.245	0.282	0.305	0.281	0.269	0.024

Table 47 六隻家兔口服黃芩湯(劑量 143.89 mg/kg )後之血漿中  
Baicalin 濃度值經 LAGRAN-P 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
λ-z (min <sup>-1</sup> )	0.007	0.004	0.004	0.003	0.004	0.004	0.004	0.001
T1/2 (min)	98.88	154.70	174.81	236.47	180.53	191.67	172.85	45.31
AUC <sub>0-720</sub> (μg·min/ml)	42.786	44.699	54.568	68.088	49.828	56.401	52.728	9.214
AUC <sub>0-∞</sub> (μg·min/ml)	51.632	56.530	70.208	87.219	64.937	70.506	66.839	12.500
CL (L/min)	2.787	2.545	2.049	1.650	2.216	2.041	2.215	0.403
MRT (min)	181.37	234.57	280.41	354.32	248.55	267.29	261.08	57.13
VD <sub>ss</sub> (L)	505.444	597.073	574.688	584.540	550.735	545.489	559.662	33.059

Table 48 六隻家兔口服黃芩湯(劑量 60.97 mg/kg)後之血漿中  
Paeoniflorin 濃度值經 WINNONLIN 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
V/F (L)	75.754	67.278	81.812	67.808	79.573	63.376	72.600	7.481
K <sub>01</sub> (min <sup>-1</sup> )	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.0004
K <sub>10</sub> (min <sup>-1</sup> )	0.006	0.006	0.006	0.005	0.005	0.005	0.006	0.0005
AUC (μg·min/ml)	253.239	266.101	230.421	322.316	255.410	351.181	279.778	46.538
K <sub>01</sub> -HL (min)	123.03	116.25	117.81	141.16	126.35	137.59	127.03	10.28
K <sub>10</sub> -HL (min)	121.16	113.07	119.06	138.04	128.36	140.57	126.71	10.94
CL/F (L/min)	0.433	0.412	0.476	0.340	0.430	0.313	0.401	0.062
T <sub>max</sub> (min)	176.14	165.40	170.87	201.38	183.73	200.63	183.03	15.19
C <sub>max</sub> (μg/ml)	0.529	0.592	0.496	0.589	0.511	0.644	0.560	0.057

Table 49 六隻家兔口服黃芩湯(劑量 60.97 mg/kg)後之血漿中  
Paeoniflorin 濃度值經 LAGRAN-P 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
λ-z (min <sup>-1</sup> )	0.005	0.005	0.005	0.004	0.005	0.004	0.005	0.001
T <sub>1/2</sub> (min)	145.29	147.33	137.23	157.97	145.37	157.98	148.53	8.10
AUC <sub>0-720</sub> (μg·min/ml)	234.240	262.818	192.429	277.152	224.104	301.988	248.789	39.570
AUC <sub>0-∞</sub> (μg·min/ml)	256.043	288.756	204.311	309.065	245.081	336.867	273.354	47.775
CL (L/min)	0.238	0.211	0.298	0.197	0.248	0.181	0.229	0.042
MRT (min)	359.75	365.27	305.65	286.17	360.01	386.51	343.89	38.94
VD <sub>ss</sub> (L)	85.666	77.125	91.212	76.180	89.563	69.956	81.617	8.454

Table 50 六隻家兔口服黃芩湯(劑量 110.55 mg/kg)後之血漿中  
Glycyrrhizic acid 濃度值經 WINNONLIN 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
V/F (L)	32.052	17.672	24.156	29.755	30.028	22.790	26.075	5.477
K <sub>01</sub> (min <sup>-1</sup> )	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.000
K <sub>10</sub> (min <sup>-1</sup> )	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.000
AUC (μg·min/ml)	2000.28	3521.53	2696.02	2095.07	2119.13	2603.89	2505.99	574.680
K <sub>01</sub> -HL (min)	222.17	213.74	228.53	215.18	220.38	208.45	218.08	7.09
K <sub>10</sub> -HL (min)	223.33	216.77	226.86	217.14	221.66	206.71	218.74	7.02
CL/F (L/min)	0.099	0.057	0.074	0.095	0.094	0.076	0.083	0.017
T <sub>max</sub> (min)	321.36	310.54	328.49	311.85	318.86	299.47	315.09	10.08
C <sub>max</sub> (μg/ml)	2.290	4.172	3.019	2.471	2.445	3.199	2.933	0.704

Table 51 六隻家兔口服黃芩湯(劑量 110.55 mg/kg)後之血漿中  
Glycyrrhizic acid 濃度值經 LAGRAN-P 處理之相關藥動學參數

Parameters	No.1	No.2	No.3	No.4	No.5	No.6	Mean	S.D.
λ-z (min <sup>-1</sup> )	0.003	0.003	0.004	0.003	0.004	0.004	0.004	0.001
T <sub>1/2</sub> (min)	222.33	262.77	193.11	266.05	175.51	169.69	214.91	42.51
AUC <sub>0-720</sub> (μg·min/ml)	1287.69	2292.07	1702.62	1388.82	1374.54	1731.85	1629.60	372.72
AUC <sub>0-∞</sub> (μg·min/ml)	1626.47	3066.36	2082.70	1882.04	1658.94	2039.39	2059.317	528.046
CL (L/min)	0.068	0.036	0.053	0.059	0.067	0.054	0.056	0.012
MRT (min)	518.11	556.77	495.30	566.90	481.21	462.42	513.45	41.78
VD <sub>ss</sub> (L)	35.215	20.073	26.290	33.300	32.067	25.066	28.669	5.803

Table 52 六隻家兔口服黃芩湯後 Baicalin、Paeoniflorin 及 Glycyrrhizic acid 之生體可用率

F(%)	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	Mean	S.D.	C.V.%
Baicalin	4.320	3.219	4.762	5.801	2.751	4.119	4.162	1.091	26.218
Paeoniflorin	4.157	4.406	3.690	5.499	3.630	6.277	4.610	1.060	23.004
Glycyrrhizic acid	2.094	3.697	3.068	2.276	2.210	2.587	2.655	0.619	23.321

Table 53 六隻家兔經標準品靜脈注射 I.V.(S)及黃芩湯靜脈注射 I.V.(E)後之 Baicalin 血中濃度值( $\mu\text{g}/\text{ml}$ )經 WINNOLIN 程式處理之相關動力學參數平均值以 t-test 比較之結果

Parameters	I.V. (S)	I.V. (E)	T-value	$t_{0.95}$	Result
$T_{1/2}$ (min)	90.32 $\pm$ 12.58	62.95 $\pm$ 9.26	4.291	2.228	p<0.05
$AUC_{0-\infty}$ ( $\mu\text{g}\cdot\text{min}/\text{ml}$ )	282.329 $\pm$ 29.244	145.324 $\pm$ 26.090	8.563	2.228	p<0.05
CL (L/min)	0.143 $\pm$ 0.015	0.217 $\pm$ 0.034	-4.862	2.228	p<0.05
$VD_{SS}$ (L)	3.578 $\pm$ 0.454	5.830 $\pm$ 1.376	-3.798	2.228	p<0.05

Table 54 六隻家兔經標準品靜脈注射 I.V.(S)及黃芩湯靜脈注射 I.V.(E)後之 Baicalin 血中濃度值( $\mu\text{g}/\text{ml}$ )經 LAGRAN-P 程式處理之相關動力學參數平均值以 t-test 比較之結果

Parameters	I.V. (S)	I.V. (E)	T-value	$t_{0.95}$	Result
$T_{1/2}$ (min)	90.84 $\pm$ 5.18	70.06 $\pm$ 12.89	3.664	2.228	p<0.05
$AUC_{0-360}$ ( $\mu\text{g}\cdot\text{min}/\text{ml}$ )	196.198 $\pm$ 23.154	94.974 $\pm$ 23.265	7.554	2.228	p<0.05
$AUC_{0-\infty}$ ( $\mu\text{g}\cdot\text{min}/\text{ml}$ )	203.074 $\pm$ 23.393	100.510 $\pm$ 23.769	7.533	2.228	p<0.05
CL (L/min)	0.075 $\pm$ 0.008	0.142 $\pm$ 0.032	-5.050	2.228	p<0.05
MRT (min)	26.99 $\pm$ 1.77	35.60 $\pm$ 8.17	-2.524	2.228	p<0.05
$VD_{SS}$ (L)	2.018 $\pm$ 0.274	4.923 $\pm$ 1.139	-6.073	2.228	p<0.05

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Data are expressed as Mean  $\pm$  S.D.

Table 55 六隻家兔經標準品靜脈注射 I.V.(S) 黃芩湯靜脈注射 I.V.(E) 及口服 P.O.後之 Baicalin 血中濃度值( $\mu\text{g/ml}$ )經 WINNONLIN 程式處理之相關動力學參數平均值以 One-Way ANOVA 比較之結果

Parameters	I.V. (S)	I.V. (E)	P.O.	F-value	$\alpha=0.05$	Result
$T_{1/2}$ (min)	90.32 $\pm$ 12.58	62.95 $\pm$ 9.26	119.66 $\pm$ 27.72	14.298	3.68	p<0.05
$AUC_{0-\infty}$ ( $\mu\text{g}\cdot\text{min/ml}$ )	282.329 $\pm$ 29.244	145.324 $\pm$ 26.090	62.206 $\pm$ 9.976	135.990	3.68	p<0.05

Table 56 六隻家兔經標準品靜脈注射 I.V.(S) 黃芩湯靜脈注射 I.V.(E) 及口服 P.O.後之 Baicalin 血中濃度值( $\mu\text{g/ml}$ )經 LAGRAN-P 程式處理之相關動力學參數平均值以 One-Way ANOVA 比較之結果

Parameters	I.V. (S)	I.V. (E)	P.O.	F-value	$\alpha=0.05$	Result
$T_{1/2}$ (min)	90.84 $\pm$ 5.18	70.06 $\pm$ 12.89	172.85 $\pm$ 45.31	23.671	3.68	p<0.05
$AUC_{0-\infty}$ ( $\mu\text{g}\cdot\text{min/ml}$ )	203.074 $\pm$ 23.393	100.510 $\pm$ 23.769	66.839 $\pm$ 12.500	72.236	3.68	p<0.05
CL (L/min)	0.075 $\pm$ 0.008	0.142 $\pm$ 0.032	2.215 $\pm$ 0.403	161.477	3.68	p<0.05
$VD_{SS}$ (L)	2.018 $\pm$ 0.274	4.923 $\pm$ 1.139	559.662 $\pm$ 33.059	132.480	3.68	p<0.05

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Data are expressed as Mean  $\pm$  S.D.



Table 57 六隻家兔經標準品靜脈注射 I.V.(S)及黃芩湯靜脈注射 I.V.(E)後之 Paeoniflorin 血中濃度值( $\mu\text{g/ml}$ )經 WINNOLIN 程式處理之相關動力學參數平均值以 t-test 比較之結果

Parameters	I.V. (S)	I.V. (E)	T-value	$t_{0.95}$	Result
$T_{1/2}$ (min)	27.13 $\pm$ 3.19	34.93 $\pm$ 4.10	3.674	2.228	p<0.05
$AUC_{0-\infty}$ ( $\mu\text{g}\cdot\text{min/ml}$ )	454.584 $\pm$ 33.053	367.835 $\pm$ 29.322	4.809	2.228	p<0.05
CL (L/min)	0.028 $\pm$ 0.003	0.024 $\pm$ 0.004	2.016	2.228	NS.
$VD_{SS}$ (L)	0.997 $\pm$ 0.168	0.797 $\pm$ 0.142	2.229	2.228	p<0.05

Table58 六隻家兔經標準品靜脈注射 I.V.(S)及黃芩湯靜脈注射 I.V.(E)後之 Paeoniflorin 血中濃度值( $\mu\text{g/ml}$ )經 LAGRAN-P 程式處理之相關動力學參數平均值以 t-test 比較之結果

Parameters	I.V. (S)	I.V. (E)	T-value	$t_{0.95}$	Result
$T_{1/2}$ (min)	71.12 $\pm$ 15.76	51.87 $\pm$ 14.56	2.198	2.228	NS.
$AUC_{0-360}$ ( $\mu\text{g}\cdot\text{min/ml}$ )	432.249 $\pm$ 24.155	326.227 $\pm$ 30.036	6.738	2.228	P<0.05
$AUC_{0-\infty}$ ( $\mu\text{g}\cdot\text{min/ml}$ )	443.290 $\pm$ 25.477	345.517 $\pm$ 47.552	4.439	2.228	P<0.05
CL (L/min)	0.011 $\pm$ 0.001	0.011 $\pm$ 0.001	0.785	2.228	NS.
MRT (min)	59.80 $\pm$ 8.41	41.63 $\pm$ 9.38	3.536	2.228	P<0.05
$VD_{SS}$ (L)	0.675 $\pm$ 0.088	0.523 $\pm$ 0.177	1.885	2.228	NS.

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Data are expressed as Mean  $\pm$  S.D.

N.S. are expressed as non significance

Table 59 六隻家兔經標準品靜脈注射 I.V.(S) 黃芩湯靜脈注射 I.V.(E) 及口服 P.O.後之 Paeoniflorin 血中濃度值( $\mu\text{g}/\text{ml}$ )經 WINNONLIN 程式處理之相關動力學參數平均值以 One-Way ANOVA 比較之結果

Parameters	I.V. (S)	I.V. (E)	P.O.	F-value	$\alpha=0.05$	Result
$T_{1/2}$ (min)	$27.13 \pm 3.19$	$34.93 \pm 4.10$	$126.71 \pm 10.94$	376.419	3.68	$P < 0.05$
$AUC_{0-\infty}$ ( $\mu\text{g}\cdot\text{min}/\text{ml}$ )	$454.584 \pm 33.053$	$367.835 \pm 29.322$	$279.778 \pm 46.538$	33.391	3.68	$P < 0.05$

Table 60 六隻家兔經標準品靜脈注射 I.V.(S) 黃芩湯靜脈注射 I.V.(E) 及口服 P.O.後之 Paeoniflorin 血中濃度值( $\mu\text{g}/\text{ml}$ )經 LAGRAN-P 程式處理之相關動力學參數平均值以 One-Way ANOVA 比較之結果

Parameters	I.V. (S)	I.V. (E)	P.O.	F-value	$\alpha=0.05$	Result
$T_{1/2}$ (min)	$71.12 \pm 15.76$	$51.87 \pm 14.56$	$148.53 \pm 8.10$	89.597	3.68	$P < 0.05$
$AUC_{0-\infty}$ ( $\mu\text{g}\cdot\text{min}/\text{ml}$ )	$443.290 \pm 25.477$	$345.517 \pm 47.552$	$273.354 \pm 47.775$	25.215	3.68	$P < 0.05$
CL (L/min)	$0.011 \pm 0.001$	$0.011 \pm 0.001$	$0.229 \pm 0.042$	160.667	3.68	$p < 0.05$
$VD_{SS}$ (L)	$0.675 \pm 0.088$	$0.523 \pm 0.177$	$81.617 \pm 8.454$	550.811	3.68	$p < 0.05$

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Data are expressed as Mean  $\pm$  S.D.

Table 61 六隻家兔經標準品靜脈注射 I.V.(S)及黃芩湯靜脈注射 I.V.(E)後之 Glycyrrhizic acid 血中濃度值( $\mu\text{g/ml}$ )經 WINNOLIN 程式處理之相關動力學參數平均值以 t-test 比較之結果

Parameters	I.V. (S)	I.V. (E)	T-value	$t_{0.95}$	Result
$T_{1/2}$ (min)	137.30 $\pm$ 7.14	206.33 $\pm$ 48.96	20.432	2.228	P<0.05
$AUC_{0-\infty}$ ( $\mu\text{g}\cdot\text{min/ml}$ )	9409.995 $\pm$ 394.41	5516.157 $\pm$ 249.73	-3.417	2.228	P<0.05
CL (L/min)	0.003 $\pm$ 0.0003	0.003 $\pm$ 0.000	1.886	2.228	NS.
$VD_{SS}$ (L)	0.535 $\pm$ 0.069	0.877 $\pm$ 0.265	-3.061	2.228	P<0.05

Table 62 六隻家兔經標準品靜脈注射 I.V.(S)及黃芩湯靜脈注射 I.V.(E)後之 Glycyrrhizic acid 血中濃度值( $\mu\text{g/ml}$ )經 LAGRAN-P 程式處理之相關動力學參數平均值以 t-test 比較之結果

Parameters	I.V. (S)	I.V. (E)	T-value	$t_{0.95}$	Result
$T_{1/2}$ (min)	213.45 $\pm$ 15.07	204.85 $\pm$ 30.22	0.624	2.228	NS.
$AUC_{0-360}$ ( $\mu\text{g}\cdot\text{min/ml}$ )	7809.990 $\pm$ 275.71	3870.177 $\pm$ 323.52	22.703	2.228	P<0.05
$AUC_{0-\infty}$ ( $\mu\text{g}\cdot\text{min/ml}$ )	10995.83 $\pm$ 390.49	5366.333 $\pm$ 474.80	22.431	2.228	P<0.05
CL (L/min)	0.00091 $\pm$ 0.00003	0.00121 $\pm$ 0.00010	-0.6745	2.228	NS.
MRT (min)	286.97 $\pm$ 20.23	282.42 $\pm$ 42.55	0.236	2.228	NS.
$VD_{SS}$ (L)	0.261 $\pm$ 0.017	0.340 $\pm$ 0.045	-4.033	2.228	P<0.05

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Data are expressed as Mean  $\pm$  S.D.

N.S. are expressed as non significance

Table 63 六隻家兔經標準品靜脈注射 I.V.(S)、黃芩湯靜脈注射 I.V.(E) 及口服 P.O.後之 Glycyrrhizic acid 血中濃度值( $\mu\text{g/ml}$ )經 WINNONLIN 程式處理之相關動力學參數平均值以 One-Way ANOVA 比較之結果

Parameters	I.V. (S)	I.V. (E)	P.O.	F-value	$\alpha=0.05$	Result
$T_{1/2}$ (min)	137.30 $\pm$ 7.14	206.33 $\pm$ 48.96	218.74 $\pm$ 7.02	13.877	3.68	P<0.05
$AUC_{0-\infty}$ ( $\mu\text{g}\cdot\text{min/ml}$ )	9409.995 $\pm$ 394.41	5516.153 $\pm$ 249.72	2505.99 $\pm$ 574.68	393.421	3.68	P<0.05

Table 64 六隻家兔經標準品靜脈注射 I.V.(S) 黃芩湯靜脈注射 I.V.(E) 及口服 P.O.後之 Glycyrrhizic acid 血中濃度值( $\mu\text{g/ml}$ )經 LAGRAN-P 程式處理之相關動力學參數平均值以 One-Way ANOVA 比較之結果

Parameters	I.V. (S)	I.V. (E)	P.O.	F-value	$\alpha=0.05$	Result
$T_{1/2}$ (min)	213.45 $\pm$ 15.07	204.85 $\pm$ 30.22	214.91 $\pm$ 42.51	0.181	3.68	NS.
$AUC_{0-\infty}$ ( $\mu\text{g}\cdot\text{min/ml}$ )	10995.83 $\pm$ 390.49	5366.33 $\pm$ 474.80	2059.32 $\pm$ 528.05	559.522	3.68	P<0.05
CL (L/min)	0.00091 $\pm$ 0.00003	0.00121 $\pm$ 0.00010	0.056 $\pm$ 0.012	132.637	3.68	P<0.05
$VD_{SS}$ (L)	0.261 $\pm$ 0.017	0.340 $\pm$ 0.045	28.669 $\pm$ 5.803	145.582	3.68	P<0.05

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