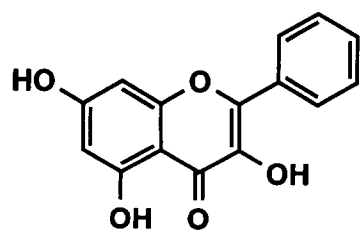


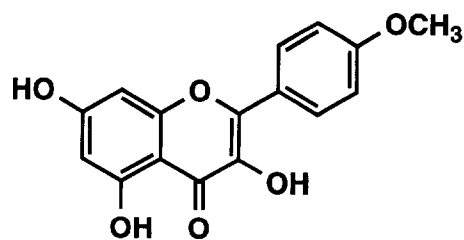
**Table 1S.** Antiemetic Effects of Extracts and Fractions from *Alpinia officinarum* on Copper Sulfate-Induced-Emesis in Young Chicks.

| drugs                  | dose<br>(mg/kg) | number of<br>young chicks | number of retching<br>(mean $\pm$ S. E. M.) | inhibition<br>(%) |
|------------------------|-----------------|---------------------------|---|-------------------|
| control                |                 | 6                         | 44.5 $\pm$ 2.33                             |                   |
| <i>n</i> -hexane ext.  | 300             | 6                         | 37.5 $\pm$ 4.19                             | 15.7              |
| CHCl <sub>3</sub> ext. | 300             | 6                         | 24.2 $\pm$ 3.23 <sup>b</sup>                | 45.6              |
| MeOH ext.              | 300             | 6                         | 32.7 $\pm$ 3.74 <sup>a</sup>                | 26.5              |
| H <sub>2</sub> O ext.  | 300             | 6                         | 31.2 $\pm$ 4.26 <sup>a</sup>                | 29.9              |
| control                |                 | 4                         | 71.3 $\pm$ 0.48                             |                   |
| Fr. 1                  | 10              | 5                         | 74.8 $\pm$ 3.48                             | -5.0              |
| Fr. 2                  | 20              | 5                         | 68.6 $\pm$ 3.53                             | 3.7               |
| control                |                 | 6                         | 61.8 $\pm$ 1.68                             |                   |
| Fr. 3                  | 50              | 6                         | 47.3 $\pm$ 1.26 <sup>a</sup>                | 23.5              |
| Fr. 5                  | 50              | 6                         | 24.2 $\pm$ 4.64 <sup>b</sup>                | 60.8              |
| control                |                 | 5                         | 56.6 $\pm$ 0.98                             |                   |
| Fr. 4                  | 50              | 4                         | 50.5 $\pm$ 2.02                             | 10.8              |
| Fr. 6                  | 50              | 5                         | 20.6 $\pm$ 2.33 <sup>b</sup>                | 63.6              |
| Fr. 7                  | 50              | 5                         | 39.2 $\pm$ 1.36 <sup>b</sup>                | 30.7              |

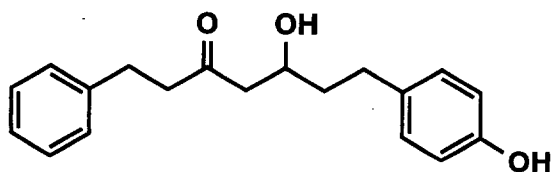
<sup>a,b</sup> Significantly different from the control value, <sup>a</sup>*p* < 0.05, <sup>b</sup>*p* < 0.001.



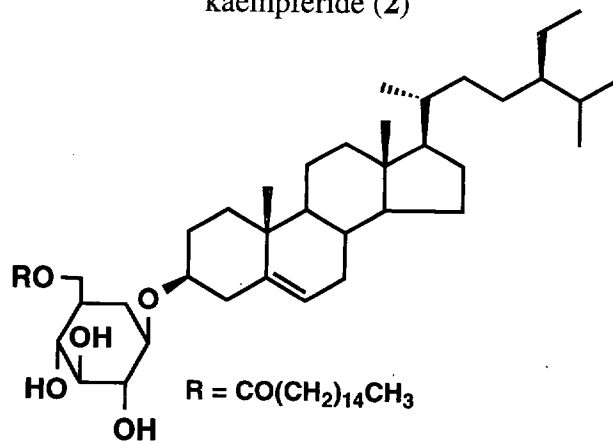
galangin (1)



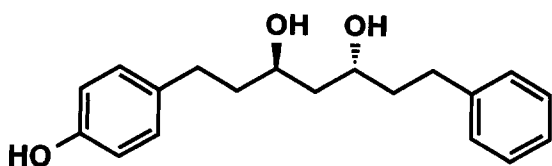
kaempferide (2)



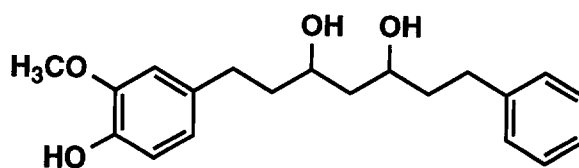
5-hydroxy-7-(4-hydroxyphenyl)-1-phenyl-3-heptanone (3)



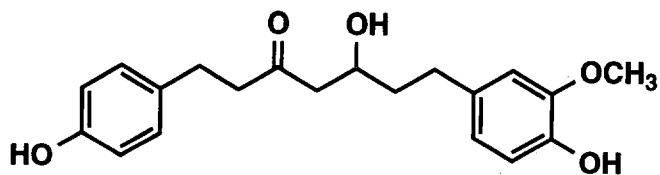
$\beta$ -sitosterol 3-O- $\beta$ -D-6-palmitoylglucoside (4)



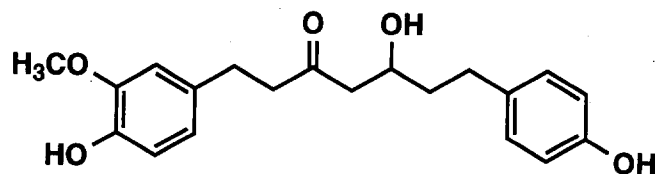
(3*R*,5*R*)-1-(4-hydroxyphenyl)-7-phenyl-3,5-heptanediol (5)



1-(4-hydroxy-3-methoxyphenyl)-7-phenyl-3,5-heptanediol (6)



5-hydroxy-7-(4-hydroxy-3methoxyphenyl)-1-(4-hydroxyphenyl)-3-heptanone (7)



5-hydroxy-1-(4-hydroxy-3-methoxyphenyl)-7-(4-hydroxyphenyl)-3-heptanone (8)

Figure 1S. Structures of the compounds isolated from *Alpinia officinarum*.

## Spectral data of known compounds (1 –6 and 8)

**Galangin (1)** : Yellow powder ; mp 215-219 °C; UV (MeOH)  $\lambda$  max (log  $\epsilon$ ) nm: 202 (3.96), 265 (3.76), 365 (3.70); IR  $\nu$  max (KBr)  $\text{cm}^{-1}$ : 3275, 1695, 1650, 1615, 1510, 1170;  $^1\text{H}$  NMR  $\delta$  (DMSO- $d_6$ ): 6.22 (1H, d,  $J = 2.0$  Hz), 6.47 (1H, d,  $J = 2.0$  Hz), 7.48 – 7.58 (2H, m), 8.15 – 8.17 (2H, m), 12.40 (1H, s);  $^{13}\text{C}$ -NMR  $\delta$  (DMSO- $d_6$ ): 145.5 (2-C), 136.8 (3-C), 176.0 (4-C), 169.5 (5-C), 98.1 (6-C), 164.0 (7-C), 93.4 (8-C), 156.0 (9-C), 103.0 (10-C), 130.7 (1'-C), 127.3 (2' and 6'-C), 128.3 (3' and 5'-C), 129.7 (4'-C).

**Kaempferide (2)**: Yellow powder; mp 217-221 °C; UV (MeOH)  $\lambda$  max (log  $\epsilon$ ) nm: 201 (3.81), 265 (3.73), 365 (3.68); IR  $\nu$  max (KBr)  $\text{cm}^{-1}$ : 3275, 1695, 1650, 1615, 1510, 1165;  $^1\text{H}$  NMR  $\delta$  (DMSO- $d_6$ ): 3.85 (3H,s), 6.21 (1H, d,  $J = 2.0$  Hz), 6.47 (1H, d,  $J = 2.0$  Hz), 7.11 (2H, d,  $J = 9.0$  Hz), 8.14 (2H, d,  $J = 9.0$  Hz), 12.50 (1H, s);  $^{13}\text{C}$ -NMR  $\delta$  (DMSO- $d_6$ ): 146.1 (2-C), 135.9 (3-C), 175.8 (4-C), 160.3 (5-C), 98.1 (6-C), 163.8 (7-C), 93.4 (8-C), 156.1 (9-C), 103.0 (10-C), 123.1 (1'-C), 129.1 (2' and 6'-C), 113.9 (3' and 5'-C), 160.5 (4'-C).

**5-Hydroxy-7-(4-hydroxyphenyl)-1-phenyl-3-heptanone (3)**: Yellow liquid;  $[\alpha]_D^{25}$  -13.0° ( $c=0.7$ ,  $\text{CHCl}_3$ ); UV (EtOH)  $\lambda$  max (log  $\epsilon$ ) nm: 212 (4.32), 222 (4.15), 278 (3.55); IR  $\nu$  max (KBr)  $\text{cm}^{-1}$ : 3400, 2925, 1700, 1515;  $^1\text{H}$  NMR  $\delta$  ( $\text{CDCl}_3$ ): 1.55-1.82 (2H, m, 6-H), 2.53-2.55 (2H, m, 4-H), 2.59-2.70 (2H, m, 7-H), 2.73 (2H, d,  $J = 7.2$  Hz, 2-H), 2.86 (2H, d,  $J = 7.0$  Hz, 1-H), 4.03 (1H, m, 5-H), 6.73 (2H, d,  $J = 7.7$  Hz, 7-H), 6.99 (2H, d,  $J = 7.7$  Hz, 8-H), 7.13 (5H, m, 9-H);  $^{13}\text{C}$ -NMR  $\delta$  ( $\text{CDCl}_3$ ): 29.4 (1-C), 44.9 (2-C), 211.5 (3-C), 49.1 (4-C), 67.0 (5-C), 38.1 (6-C), 30.7 (7-C), 140.5 (1'-C), 128.2 (2' and 6'-C), 128.5 (3' and 5'-C), 126.2 (4'-C), 129.4 (2'' and 6''-C), 115.3 (3'' and 5''-C), 154.0 (4''-C).

**$\beta$ -Sitosterol 3-O- $\beta$ -D-6-palmitoylglucoside (4):** Slightly yellow grease;  $[\alpha]_D^{25} -51.9^\circ$  ( $c=0.6$ ,  $\text{CHCl}_3$ ); IR  $\nu_{\text{max}}$  (KBr)  $\text{cm}^{-1}$ : 3400, 2950, 2860, 1735, 1460, 1380, 1175, 1020;  $^1\text{H-NMR}$  ( $\text{C}_5\text{D}_5\text{N}$ )  $\delta$ : 5.39 (1H, brs, at C-6), 3.59 (1H, m, at C-3);  $^{13}\text{C}$  NMR ( $\text{C}_5\text{D}_5\text{N}$ )  $\delta$ : 37.9 (1-C), 30.6 (2-C), 78.6 (3-C), 39.6 (4-C), 141.1 (5-C), 122.0 (6-C), 32.4 (7-H), 32.3 (8-C), 50.6 (9-C), 37.2 (10-C), 21.6 (11-C), 40.2 (12-C), 42.7 (13-C), 57.1 (14-C), 24.8 (15-C), 28.8 (16-C), 56.5 (17-C), 12.2 (18-C), 19.7 (19-C), 36.6 (20-C), 19.2 (21-C), 34.5 (22-C), 26.7 (23-C), 46.3 (24-C), 29.8 (25-C), 19.5 (6-C), 20.2 (27-C), 23.6 (28-C), 12.4 (29-C), 103.0 (1'-C), 75.3 (2'-C), 78.9 (3'-C), 71.9 (4'-C), 75.3 (5'-C), 64.9 (6'-C), 173.6 (1''-C), 23.1, 25.6, 29.7, 29.9, 30.1, 30.2, 32.2, 34.7 (2''~15''-C), 14.5 (16''-C); FAB-MS  $m/z$ : 837[M+Na] $^+$ .

**(3R,5R)-1-(4-hydroxyphenyl)-7-phenyl-3,5-heptanediol (5):** Yellow liquid;  $[\alpha]_D^{25} +7.30^\circ$  ( $c=0.86$ ,  $\text{CHCl}_3$ ); UV (EtOH)  $\lambda_{\text{max}}$  (log  $\epsilon$ ) nm: 208 (4.11), 222 (3.95), 278 (3.34); IR  $\nu_{\text{max}}$  (KBr)  $\text{cm}^{-1}$ : 3400, 2925, 1515, 1260;  $^1\text{H}$  NMR  $\delta$  ( $\text{CDCl}_3$ ): 1.66 (2H, t,  $J = 5.4$  Hz, 4-H), 1.70-1.91 (2H, m, 2, 6-H), 2.55-2.83 (2H, m, 1, 4-H), 3.94-4.02 (2H, m, 3, 5-C), 6.73 (2H, d,  $J = 8.3$  Hz, 3', 5'-H), 7.02 (2H, d,  $J = 8.3$  Hz, 2', 6'-H), 6.73 (2H, d,  $J = 7.7$  Hz, 7-H), 7.17-7.30 (5H, m, 1''-6''-H);  $^{13}\text{C}$ -NMR  $\delta$  ( $\text{CDCl}_3$ ): 31.2 (1-C), 39.2 (2-C), 69.0 (3-C), 42.5 (4-C), 68.9 (5-C), 39.1 (6-C), 32.2 (7-C), 133.5 (1'-C), 129.3 (2' and 6'-C), 115.3 (3' and 5'-C), 153.9 (4'-C), 141.7 (1''-H), 128.4 (2'', 3'', 5'', and 6''-C), 125.8 (4''-C).

**5-Hydroxy-7-(4-hydroxyphenyl)-1-(4-hydroxy-3-methoxy-phenyl)-3-heptanone (8):** Yellow liquid (34.1 mg);  $[\alpha]_D^{25} -2.16^\circ$  ( $c=0.37$ ,  $\text{CHCl}_3$ ); UV (EtOH)  $\lambda_{\text{max}}$  (log  $\epsilon$ ) nm: 206 (4.26), 222 (4.16), 279 (3.67); IR  $\nu_{\text{max}}$  (KBr)  $\text{cm}^{-1}$ : 3400, 2925, 1700, 1515;  $^1\text{H}$  NMR  $\delta$  ( $\text{CDCl}_3$ ): 1.62 (1H, m, 6-Ha), 1.76 (1H, m, 6-Hb), 2.59 (1H, m, 7-Ha), 2.69 (1H,

m, 7-Hb), 2.52 (2H, m, 4-H), 2.71 (2H, t,  $J = 7.3$  Hz, 2-H), 2.82 (2H, t,  $J = 7.3$  Hz, 1-H), 3.85 (3H, s, 3'-OCH<sub>3</sub>), 4.02 (1H, m, 5-H), 6.64 (1H, dd,  $J = 7.9, 1.8$  Hz, 6'-H), 6.66 (1H, d,  $J = 7.9$  Hz, 5'-H), 6.74 (2H, d,  $J = 8.5$  Hz, 3'' and 5''-H), 6.82 (1H, d,  $J = 7.9$  Hz), 7.03 (2H, d,  $J = 8.5$  Hz, 2'' and 6''-H); <sup>13</sup>C-NMR  $\delta$  (CDCl<sub>3</sub>): 29.3 (1-C), 45.4 (2-C), 211.4 (3-C), 49.3 (4-C), 66.7 (5-C), 38.2 (6-C), 30.8 (7-C), 132.6 (1'-C), 110.0 (2'-C), 146.5 (3'-C), 144.0 (4'-H), 114.4 (5'-C), 120.8 (6'-C), 133.8 (1''-H), 129.5 (2'', 6''-C), 115.2 (3'', 5''-H), 153.8 (4''-C), 55.9 (3'-OCH<sub>3</sub>).