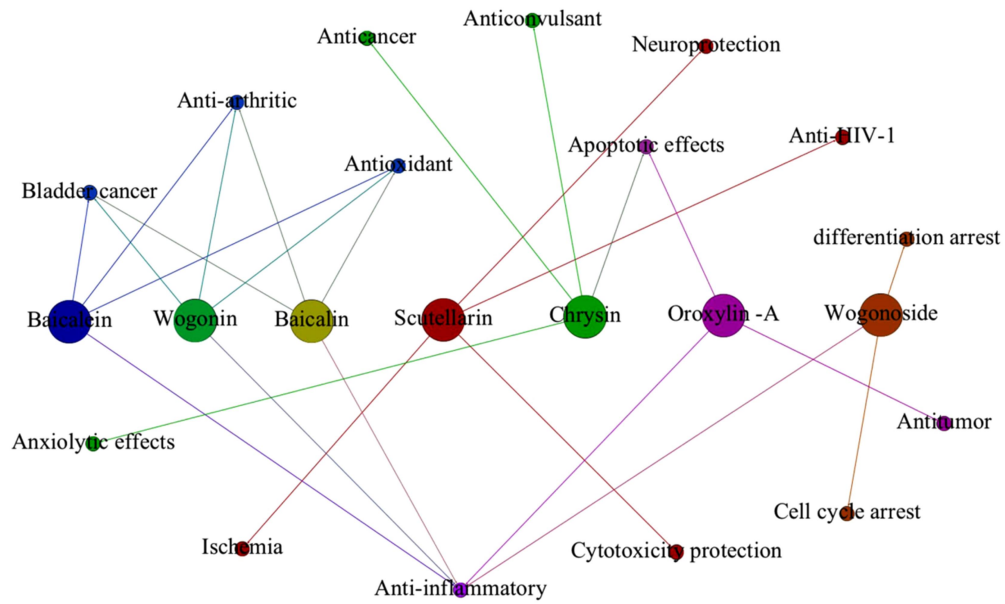


Supplementary Fig.1: the main chemical components that *Huangqin* produces, the 7 kinds of flavonoids we detected in this study.



Supplementary Fig.2: Neural network diagram of the active ingredients and their main effects.

Supplementary Table 1: Comparison of different extraction methods

| Compounds % Methods | Scutellarin | Baicalin | Wogonoside | Baicalein | Wogonin | Chrysin | Oroxylin -A | Total |
|------------------------|-------------|----------|------------|-----------|---------|---------|-------------|-------|
| Ultrasound for 10min | 0.47 | 7.04 | 3.29 | 1.18 | 0.39 | 0.029 | 0.144 | 12.54 |
| Ultrasound for 20min | 0.48 | 11.02 | 3.34 | 1.20 | 0.40 | 0.029 | 0.150 | 16.62 |
| Ultrasound for 30min | 0.48 | 11.09 | 3.33 | 1.17 | 0.39 | 0.029 | 0.149 | 16.65 |
| Soak for 4 h | 0.46 | 10.29 | 3.07 | 2.00 | 0.33 | 0.027 | 0.127 | 16.30 |
| Soak for 8h | 0.48 | 10.64 | 3.24 | 1.21 | 0.39 | 0.032 | 0.146 | 16.13 |
| Soak for 12 h | 0.48 | 10.65 | 3.25 | 1.24 | 0.40 | 0.032 | 0.150 | 16.21 |
| Reflux for 1h | 0.48 | 11.36 | 3.40 | 1.29 | 0.42 | 0.037 | 0.163 | 17.15 |
| Reflux for 2h | 0.47 | 11.41 | 3.40 | 1.28 | 0.42 | 0.038 | 0.164 | 17.20 |
| Reflux for 3h | 0.47 | 11.44 | 3.42 | 1.28 | 0.42 | 0.037 | 0.163 | 16.85 |

Supplementary Table 2: Comparison of different extraction solvents

| Compounds % Methods | Scutellarin | Baicalin | Wogonoside | Baicalein | Wogonin | Chrysin | Oroxylin -A | Total |
|------------------------|-------------|----------|------------|-----------|---------|---------|-------------|-------|
| 30% Methanol | 0.48 | 10.99 | 3.29 | 0.97 | 0.28 | 0.015 | 0.108 | 16.13 |
| 50% Methanol | 0.49 | 11.11 | 3.39 | 1.23 | 0.41 | 0.035 | 0.159 | 16.82 |
| 70% Methanol | 0.49 | 6.99 | 3.37 | 1.30 | 0.43 | 0.036 | 0.164 | 12.77 |
| Methanol | 0.36 | 5.52 | 0.73 | 1.15 | 0.39 | 0.033 | 0.150 | 8.33 |
| Ethanol | 0.06 | 0.53 | 0.30 | 0.58 | 0.19 | 0.013 | 0.066 | 1.74 |

Supplementary Table 3: Precision test for the established method

| Compounds | Scutellarin | Baicalin | Wogonoside | Baicalein | Wogonin | Chrysin | Oroxylin -A |
|-----------|-------------|----------|------------|-----------|---------|---------|-------------|
| Peak area | 2271.0 | 69246.6 | 20647.3 | 11985.7 | 3992.8 | 230.1 | 1241.1 |
| | 2267.1 | 69189.1 | 20651.3 | 11385.4 | 4091.7 | 239.2 | 1231.2 |
| | 2287.3 | 70629.4 | 20678.5 | 11633.3 | 4087.0 | 232.6 | 1256.2 |
| | 2272.5 | 71609.3 | 20798.2 | 11521.1 | 4106.9 | 226.8 | 1270.7 |
| | 2367.2 | 71539.7 | 20771.4 | 11626.7 | 4127.3 | 237.5 | 1257.4 |
| | 2297.4 | 71344.7 | 20739.7 | 11593.7 | 4122.8 | 229.1 | 1264.2 |
| Mean | 2293.7 | 70593.1 | 20714.4 | 11624.3 | 4088.1 | 232.6 | 1253.5 |
| RSD % | 1.65 | 1.59 | 0.31 | 1.72 | 1.21 | 2.10 | 1.18 |

Supplementary Table 4: Repeatability test for the established method

| NO. | Scutellarin | Baicalin | Wogonoside | Baicalein | Wogonin | Chrysin | Oroxylin -A |
|-------|-------------|----------|------------|-----------|---------|---------|-------------|
| 1 | 0.47 | 11.47 | 3.41 | 1.19 | 0.40 | 0.030 | 0.151 |
| 2 | 0.47 | 11.49 | 3.40 | 1.23 | 0.41 | 0.031 | 0.155 |
| 3 | 0.47 | 11.46 | 3.40 | 1.21 | 0.40 | 0.030 | 0.153 |
| 4 | 0.47 | 11.46 | 3.41 | 1.23 | 0.41 | 0.031 | 0.154 |
| 5 | 0.49 | 11.49 | 3.40 | 1.21 | 0.40 | 0.029 | 0.152 |
| 6 | 0.49 | 11.87 | 3.43 | 1.25 | 0.41 | 0.031 | 0.156 |
| Mean | 0.47 | 11.54 | 3.41 | 1.22 | 0.41 | 0.030 | 0.154 |
| RSD % | 2.17 | 1.41 | 0.34 | 1.72 | 1.35 | 2.69 | 1.22 |

Supplementary Table 5: Stability test for the established method

| NO. | Scutellarin | Baicalin | Wogonoside | Baicalein | Wogonin | Chrysin | Oroxylin -A |
|-------|-------------|----------|------------|-----------|---------|---------|-------------|
| 0 h | 2271.0 | 69246.6 | 20647.3 | 11985.7 | 3992.8 | 230.1 | 1241.1 |
| 2 h | 2268.6 | 70525.4 | 20773.2 | 11363.3 | 4076.8 | 237.4 | 1245.3 |
| 8 h | 2297.4 | 71344.7 | 20739.7 | 11593.7 | 4122.8 | 229.1 | 1264.2 |
| 10 h | 2306.1 | 71619.3 | 20752.4 | 11531.5 | 4006.9 | 224.1 | 1265.4 |
| 12 h | 2233.4 | 71528.7 | 20648.7 | 11676.1 | 4137.3 | 235.8 | 1256.0 |
| 24 h | 2267.3 | 71334.6 | 20631.3 | 11603.7 | 3922.8 | 227.6 | 1274.2 |
| Mean | 2282.4 | 77388.2 | 20535.2 | 10634.7 | 3809.1 | 241.2 | 1227.3 |
| RSD % | 1.13 | 1.29 | 0.30 | 1.77 | 2.06 | 2.18 | 1.01 |

