|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 1.** Mean metabolite concentrations ± standard error (n=3) measured by HPLC for 13 *Scutellaria* species. Units are µmol/g fresh weight. | | | | | | | | | |
| **Species** | **Organ** | **Acteoside** | **Apigenin** | **Apigenin 7-G** | **Baicalein** | **Baicalin** | **Chrysin** | **Chrysin 7-G** | **Hispidulin** |
| *S. altissima* | Leaf | 0 ± 0 | 0 ± 0 | 0.28 ± 0.15 | 0.7 ± 0.18 | 0 ± 0 | 0.75 ± 0.07 | 2.62 ± 0.18 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.15 ± 0.05 | 0.47 ± 0.38 | 0.04 ± 0.02 | 0.35 ± 0.05 | 0 ± 0 |
| Root | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.07 ± 0 | 5.07 ± 0.66 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. baicalensis* | Leaf | 0 ± 0 | 0.19 ± 0.03 | 0.13 ± 0.01 | 0.19 ± 0.08 | 0.2 ± 0.11 | 4.84 ± 0.53 | 1.45 ± 0.24 | 0 ± 0 |
| Stem | 0.01 ± 0.01 | 0.12 ± 0.12 | 0.22 ± 0.01 | 0.06 ± 0.03 | 0.87 ± 0.87 | 0.18 ± 0.04 | 0.09 ± 0.01 | 0.03 ± 0.02 |
| Root | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.2 ± 0.03 | 32.81 ± 2.22 | 0 ± 0 | 0.30 ± 0.01 | 0 ± 0 |
| *S. barbata* | Leaf | 0 ± 0 | 0.26 ± 0.21 | 0.02 ± 0.02 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Root | 1.94 ± 0.27 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 3.42 ± 0.40 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. dependens* | Leaf | 0 ± 0 | 4.40 ± 2.20 | 11.17 ± 3.01 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 1.55 ± 0.35 | 0 ± 0 | 0.39 ± 0.16 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Root | 1.92 ± 0.27 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 7.24 ± 1.07 | 0 ± 0 | 0.13 ± 0.07 | 0 ± 0 |
| *S. indica* var*. coccinea* | Leaf | 0.83 ± 0.28 | 1.19 ± 0.64 | 2.07 ± 0.82 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 | 0.21 ± 0.10 | 1.23 ± 0.17 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Root | 0.8 ± 0.17 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 1.13 ± 0.10 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. insignis* | Leaf | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Root | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. leonardii* | Leaf | 0.15 ± 0.15 | 0.11 ± 0.01 | 0 ± 0 | 0.22 ± 0.03 | 0.07 ± 0.03 | 25.34 ± 0.72 | 0.79 ± 0.09 | 0.13 ± 0.01 |
| Stem | 0 ± 0 | 0.02 ± 0.02 | 0 ± 0 | 0.34 ± 0.14 | 0.17 ± 0.08 | 5.37 ± 0.41 | 0.91 ± 0.31 | 0.07 ± 0 |
| Root | 0.38 ± 0.38 | 0.06 ± 0.03 | 0 ± 0 | 0.12 ± 0.03 | 5.35 ± 0.94 | 0.4 ± 0.08 | 0.18 ± 0.04 | 0.1 ± 0.03 |
| *S. pekinensis* var*. alpina* | Leaf | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 8.53 ± 1.5 | 16.62 ± 2.45 | 0 ± 0 |
| Stem | 0.49 ± 0.25 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.13 ± 0.08 | 2.14 ± 0.49 | 7.63 ± 0.79 | 0 ± 0 |
| Root | 1.45 ± 0.08 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 4.01 ± 0.48 | 0 ± 0 | 4.44 ± 0.60 | 0 ± 0 |
| *S. racemosa* | Leaf | 1.64 ± 1.64 | 0 ± 0 | 0 ± 0 | 0.34 ± 0.29 | 7.59 ± 1.95 | 0.12 ± 0.01 | 0 ± 0 | 0.63 ± 0.18 |
| Stem | 1.40 ± 1.40 | 0 ± 0 | 0 ± 0 | 0.24 ± 0.22 | 6.36 ± 2.13 | 0.03 ± 0.03 | 0 ± 0 | 0.25 ± 0.06 |
| Root | 0.87 ± 0.4 | 0 ± 0 | 0 ± 0 | 0.08 ± 0.02 | 6.98 ± 1.2 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. strigillosa* | Leaf | 0.33 ± 0.33 | 0 ± 0 | 0 ± 0 | 2.49 ± 1.20 | 37.04 ± 6.19 | 0 ± 0 | 0.78 ± 0.20 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 4.18 ± 0.64 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Root | 0.3 ± 0.30 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 3.58 ± 1.10 | 0 ± 0 | 0.12 ± 0.12 | 0 ± 0 |
| *S. suffrutescens* | Leaf | 0 ± 0 | 0 ± 0 | 0 ± 0 | 1.76 ± 0.15 | 47.43 ± 9.38 | 0 ± 0 | 1.04 ± 0.04 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 1.75 ± 0.09 | 36.72 ± 0.68 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Root | 0 ± 0 | 0 ± 0 | 0 ± 0 | 6.55 ± 0.93 | 54.56 ± 8.68 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. tournefortii* | Leaf | 0 ± 0 | 0 ± 0 | 0.28 ± 0.07 | 0.53 ± 0.13 | 0 ± 0 | 0.49 ± 0.02 | 4.69 ± 0.97 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.28 ± 0.07 | 0.08 ± 0.04 | 0.01 ± 0.01 | 0.15 ± 0.04 | 0 ± 0 |
| Root | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.13 ± 0.06 | 0.93 ± 0.08 | 0 ± 0 | 0.08 ± 0.04 | 0 ± 0 |
| *S. wrightii* | Leaf | 0 ± 0 | 0.14 ± 0.02 | 0.16 ± 0.02 | 9.61 ± 2.54 | 13.94 ± 0.86 | 1.35 ± 0.17 | 0.67 ± 0.02 | 0.39 ± 0.05 |
| Stem | 0 ± 0 | 0 ± 0 | 0.06 ± 0.03 | 0.23 ± 0.16 | 16.87 ± 8.1 | 0.04 ± 0.04 | 0 ± 0 | 0.19 ± 0.11 |
| Root | 0 ± 0 | 0 ± 0 | 0 ± 0 | 5.73 ± 1.11 | 85.75 ± 11.2 | 0 ± 0 | 0 ± 0 | 0 ± 0 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Organ** | **Hispidulin 7-G** | **OroxylinA** | **Oroxyloside** | **Scutellarein** | **Scutellarin** | **Wogonin** | **Wogonoside** |
| *S. altissima* | Leaf | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.65 ± 0.28 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 0.06 ± 0.06 | 0 ± 0 | 0.18 ± 0.01 | 0.34 ± 0.26 | 1.26 ± 0.51 |
| Root | 0 ± 0 | 0.14 ± 0.02 | 0.64 ± 0.07 | 0 ± 0 | 0 ± 0 | 2.9 ± 0.21 | 2.3 ± 0.26 |
| *S. baicalensis* | Leaf | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.27 ± 0.14 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 1.04 ± 0.43 | 0 ± 0 | 0.11 ± 0.11 | 0.02 ± 0.02 |
| Root | 0 ± 0 | 0.23 ± 0.13 | 0.87 ± 0.87 | 0 ± 0 | 0 ± 0 | 3.49 ± 0.18 | 6.43 ± 0.43 |
| *S. barbata* | Leaf | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.59 ± 0.34 | 1.66 ± 0.09 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 1.43 ± 0.14 | 0 ± 0 | 0 ± 0 |
| Root | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.34 ± 0.08 | 2.11 ± 0.29 |
| *S. dependens* | Leaf | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 5.81 ± 2.14 | 11.77 ± 2.05 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.51 ± 0.1 | 6.71 ± 1.13 |
| Root | 0 ± 0 | 0.47 ± 0.25 | 5.23 ± 1.23 | 0 ± 0 | 0 ± 0 | 2.58 ± 0.37 | 4.32 ± 0.74 |
| *S. indica* var*. coccinea* | Leaf | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.97 ± 0.68 | 3.57 ± 1.45 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 1.58 ± 0.2 | 0 ± 0 | 0 ± 0 |
| Root | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 3.3 ± 0.37 | 4.61 ± 0.4 |
| *S. insignis* | Leaf | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.19 ± 0.04 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Root | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.04 ± 0.04 | 1.02 ± 0.31 |
| *S. leonardii* | Leaf | 0 ± 0 | 0.59 ± 0.11 | 0 ± 0 | 0.22 ± 0.04 | 0 ± 0 | 0.07 ± 0.07 | 0.06 ± 0.02 |
| Stem | 0 ± 0 | 0.37 ± 0.03 | 0.03 ± 0.03 | 0.11 ± 0.01 | 0 ± 0 | 1.24 ± 0.09 | 0.1 ± 0.05 |
| Root | 0 ± 0 | 1.86 ± 0.31 | 2.18 ± 0.33 | 0 ± 0 | 0 ± 0 | 5.62 ± 1.1 | 0 ± 0 |
| *S. pekinensis* var*. alpina* | Leaf | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Root | 0 ± 0 | 0.14 ± 0.13 | 0.08 ± 0.06 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. racemosa* | Leaf | 0 ± 0 | 14.39 ± 2.58 | 29.39 ± 8 | 0 ± 0 | 0 ± 0 | 0.02 ± 0.02 | 0 ± 0 |
| Stem | 0.06 ± 0.06 | 5.09 ± 1.09 | 15.17 ± 4.14 | 0 ± 0 | 0 ± 0 | 0.44 ± 0.03 | 0.45 ± 0.19 |
| Root | 0 ± 0 | 0.44 ± 0.11 | 2.02 ± 0.38 | 0 ± 0 | 0 ± 0 | 1.82 ± 0.06 | 1.6 ± 0.25 |
| *S. strigillosa* | Leaf | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.04 ± 0.03 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.17 ± 0.1 | 0.44 ± 0.11 |
| Root | 0 ± 0 | 0 ± 0 | 1.3 ± 0.77 | 0 ± 0 | 0 ± 0 | 0.78 ± 0.41 | 2.15 ± 0.58 |
| *S. suffrutescens* | Leaf | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 | 0 ± 0 | 2.37 ± 0.25 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Root | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. tournefortii* | Leaf | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.12 ± 0.02 | 0 ± 0 | 0.06 ± 0.06 |
| Stem | 0 ± 0 | 0 ± 0 | 0.06 ± 0.03 | 0 ± 0 | 0.61 ± 0.16 | 0.13 ± 0.05 | 2.43 ± 0.66 |
| Root | 0 ± 0 | 0.08 ± 0.01 | 1.24 ± 0.14 | 0 ± 0 | 0 ± 0 | 2.33 ± 0.2 | 7.61 ± 0.15 |
| *S. wrightii* | Leaf | 0 ± 0 | 0.46 ± 0.09 | 0.51 ± 0.11 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 | 0.28 ± 0.1 | 8.52 ± 3.27 | 0 ± 0 | 0 ± 0 | 0.01 ± 0.01 | 0.2 ± 0.05 |
| Root | 0 ± 0 | 0.3 ± 0.08 | 6.83 ± 0.24 | 0 ± 0 | 0 ± 0 | 0.38 ± 0.09 | 3.67 ± 1.22 |