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| **Table 1.** Mean metabolite concentrations ± standard error (n=3) measured by HPLC. Units are µmol/g fresh weight. | | | | | | | | | |
|  |  | Phenylpropanoids |  | 4’-hydroxyflavones | | | | | |
| Species | Organ | Acteoside |  | Apigenin | ApigeninG | Scutellarein | Scutellarin | Hispidulin | HispidulinG |
| *S. altissima* | Leaf | 0 ± 0 |  | 0 ± 0 | 0.29 ± 0.16 | 0.65 ± 0.28 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.18 ± 0.01 | 0 ± 0 | 0 ± 0 |
| Root | 0 ± 0 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. arenicola* | Leaf | 2.76 ± 1.38 |  | 0.44 ± 0.08 | 0.11 ± 0.06 | 0.25 ± 0.1 | 0.04 ± 0.02 | 13.45 ± 3.41 | 0.85 ± 0.43 |
| Stem | 0.67 ± 0.67 |  | 0 ± 0 | 0.02 ± 0.02 | 0.23 ± 0.17 | 0.2 ± 0.11 | 2.57 ± 0.23 | 0.12 ± 0.12 |
| Root | 2 ± 0.5 |  | 0 ± 0 | 0.35 ± 0.18 | 0 ± 0 | 3.07 ± 0.64 | 0 ± 0 | 0 ± 0 |
| *S. baicalensis* | Leaf | 0 ± 0 |  | 0.19 ± 0.03 | 0.13 ± 0.01 | 0.27 ± 0.14 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0.01 ± 0.01 |  | 0.12 ± 0.12 | 0.23 ± 0.01 | 1.04 ± 0.43 | 0 ± 0 | 0.03 ± 0.02 | 0 ± 0 |
| Root | 0 ± 0 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. barbata* | Leaf | 0 ± 0 |  | 0.26 ± 0.21 | 0.02 ± 0.02 | 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 | 1.94 ± 0.27 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. dependens* | Leaf | 0 ± 0 |  | 4.4 ± 2.2 | 11.53 ± 3.11 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 |  | 0 ± 0 | 1.6 ± 0.36 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Root | 1.92 ± 0.27 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. havanensis* | Leaf | 16.69 ± 9.45 |  | 0.23 ± 0.03 | 1.62 ± 0.32 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 |  | 0 ± 0 | 0.18 ± 0.05 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Root | 0 ± 0 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. indica* var*. coccinea* | Leaf | 0.83 ± 0.28 |  | 1.19 ± 0.64 | 2.13 ± 0.85 | 0.97 ± 0.68 | 3.57 ± 1.45 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 |  | 0.21 ± 0.1 | 1.27 ± 0.18 | 0 ± 0 | 1.58 ± 0.2 | 0 ± 0 | 0 ± 0 |
| Root | 0.8 ± 0.17 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *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 ± 0 | 0 ± 0 |
| *S. leonardii* | Leaf | 0.15 ± 0.15 |  | 0.11 ± 0.01 | 0 ± 0 | 0.22 ± 0.04 | 0 ± 0 | 0.13 ± 0.01 | 0 ± 0 |
| Stem | 0 ± 0 |  | 0.02 ± 0.02 | 0 ± 0 | 0.11 ± 0.01 | 0 ± 0 | 0.07 ± 0 | 0 ± 0 |
| Root | 0.38 ± 0.38 |  | 0.06 ± 0.03 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.1 ± 0.03 | 0 ± 0 |
| *S. pekinensis* var*. alpina* | Leaf | 0 ± 0 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0.49 ± 0.25 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Root | 1.45 ± 0.08 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. racemosa* | Leaf | 1.64 ± 1.64 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.63 ± 0.18 | 0 ± 0 |
| Stem | 1.4 ± 1.4 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.25 ± 0.06 | 0.06 ± 0.06 |
| Root | 0.87 ± 0.4 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. strigillosa* | Leaf | 0.33 ± 0.33 |  | 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 | 0.3 ± 0.3 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. tournefortii* | Leaf | 0 ± 0 |  | 0 ± 0 | 0.29 ± 0.07 | 0 ± 0 | 0.12 ± 0.02 | 0 ± 0 | 0 ± 0 |
| Stem | 0 ± 0 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.61 ± 0.16 | 0 ± 0 | 0 ± 0 |
| Root | 0 ± 0 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| *S. wrightii* | Leaf | 0 ± 0 |  | 0.14 ± 0.02 | 0.17 ± 0.02 | 0 ± 0 | 0 ± 0 | 0.39 ± 0.05 | 0 ± 0 |
| Stem | 0 ± 0 |  | 0 ± 0 | 0.06 ± 0.03 | 0 ± 0 | 0 ± 0 | 0.19 ± 0.11 | 0 ± 0 |
| Root | 0 ± 0 |  | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |

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|  |  | 4’-deoxyflavones | | | | | | | |
| Species | Organ | Chrysin | ChrysinG | Baicalein | Baicalin | OroxylinA | Oroxyloside | Wogonin | Wogonoside |
| *S. altissima* | Leaf | 0.75 ± 0.07 | 2.71 ± 0.19 | 0.7 ± 0.18 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0.04 ± 0.02 | 0.36 ± 0.05 | 0.15 ± 0.05 | 0.47 ± 0.38 | 0 ± 0 | 0.06 ± 0.06 | 0.34 ± 0.26 | 1.26 ± 0.51 |
| Root | 0 ± 0 | 0 ± 0 | 0.07 ± 0 | 5.07 ± 0.66 | 0.14 ± 0.02 | 0.64 ± 0.07 | 2.9 ± 0.21 | 2.3 ± 0.26 |
| *S. arenicola* | Leaf | 0.19 ± 0.02 | 0 ± 0 | 0.2 ± 0.06 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.38 ± 0.11 | 0.03 ± 0.02 |
| Stem | 0.06 ± 0.06 | 0 ± 0 | 0.31 ± 0.26 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 2.98 ± 0.15 | 0.45 ± 0.09 |
| Root | 0 ± 0 | 0 ± 0 | 1.84 ± 0.3 | 0 ± 0 | 0 ± 0 | 0.17 ± 0.06 | 4.98 ± 0.66 | 5.37 ± 0.31 |
| *S. baicalensis* | Leaf | 4.84 ± 0.53 | 1.49 ± 0.25 | 0.19 ± 0.08 | 0.2 ± 0.11 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 0.18 ± 0.04 | 0.09 ± 0.01 | 0.06 ± 0.03 | 0.87 ± 0.87 | 0 ± 0 | 0 ± 0 | 0.11 ± 0.11 | 0.02 ± 0.02 |
| Root | 0 ± 0 | 0.31 ± 0.01 | 0.2 ± 0.03 | 32.81 ± 2.22 | 0.23 ± 0.13 | 0.87 ± 0.87 | 3.49 ± 0.18 | 6.43 ± 0.43 |
| *S. barbata* | 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 | 3.42 ± 0.4 | 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 | 0 ± 0 | 5.81 ± 2.14 | 11.77 ± 2.05 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.39 ± 0.16 | 0 ± 0 | 0 ± 0 | 0.51 ± 0.1 | 6.71 ± 1.13 |
| Root | 0 ± 0 | 0.14 ± 0.07 | 0 ± 0 | 7.24 ± 1.07 | 0.47 ± 0.25 | 5.23 ± 1.23 | 2.58 ± 0.37 | 4.32 ± 0.74 |
| *S. havanensis* | Leaf | 4.25 ± 0.63 | 19.06 ± 4.33 | 0.08 ± 0.03 | 31.22 ± 6.88 | 0.02 ± 0.02 | 0 ± 0 | 0.04 ± 0.02 | 0.27 ± 0.17 |
| Stem | 0.99 ± 0.26 | 4.06 ± 0.11 | 0.04 ± 0 | 13.88 ± 0.21 | 0.11 ± 0.03 | 1.54 ± 0.1 | 1.08 ± 0.15 | 2.78 ± 0.04 |
| Root | 0.89 ± 0.08 | 3.37 ± 0.22 | 0.14 ± 0.02 | 38.21 ± 1.73 | 0.25 ± 0.07 | 3.08 ± 0.64 | 2.84 ± 0.24 | 11.09 ± 0.39 |
| *S. indica* var*. coccinea* | 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 | 1.13 ± 0.1 | 0 ± 0 | 0 ± 0 | 3.3 ± 0.37 | 4.61 ± 0.4 |
| *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 | 0.04 ± 0.04 | 1.02 ± 0.31 |
| *S. leonardii* | Leaf | 25.34 ± 0.72 | 0.82 ± 0.09 | 0.22 ± 0.03 | 0.07 ± 0.03 | 0.59 ± 0.11 | 0 ± 0 | 0.07 ± 0.07 | 0.06 ± 0.02 |
| Stem | 5.37 ± 0.41 | 0.94 ± 0.32 | 0.34 ± 0.14 | 0.17 ± 0.08 | 0.37 ± 0.03 | 0.03 ± 0.03 | 1.24 ± 0.09 | 0.1 ± 0.05 |
| Root | 0.4 ± 0.08 | 0.18 ± 0.04 | 0.12 ± 0.03 | 5.35 ± 0.94 | 1.86 ± 0.31 | 2.18 ± 0.33 | 5.62 ± 1.1 | 0 ± 0 |
| *S. pekinensis* var*. alpina* | Leaf | 8.53 ± 1.5 | 17.18 ± 2.53 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Stem | 2.14 ± 0.49 | 7.89 ± 0.82 | 0 ± 0 | 0.13 ± 0.08 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Root | 0 ± 0 | 4.59 ± 0.62 | 0 ± 0 | 4.01 ± 0.48 | 0.14 ± 0.13 | 0.08 ± 0.06 | 0 ± 0 | 0 ± 0 |
| *S. racemosa* | Leaf | 0.12 ± 0.01 | 0 ± 0 | 0.34 ± 0.29 | 7.59 ± 1.95 | 14.39 ± 2.58 | 29.39 ± 8 | 0.02 ± 0.02 | 0 ± 0 |
| Stem | 0.03 ± 0.03 | 0 ± 0 | 0.24 ± 0.22 | 6.36 ± 2.13 | 5.09 ± 1.09 | 15.17 ± 4.14 | 0.44 ± 0.03 | 0.45 ± 0.19 |
| Root | 0 ± 0 | 0 ± 0 | 0.08 ± 0.02 | 6.98 ± 1.2 | 0.44 ± 0.11 | 2.02 ± 0.38 | 1.82 ± 0.06 | 1.6 ± 0.25 |
| *S. strigillosa* | Leaf | 0 ± 0 | 0.8 ± 0.2 | 2.49 ± 1.2 | 37.04 ± 6.19 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.04 ± 0.03 |
| Stem | 0 ± 0 | 0 ± 0 | 0 ± 0 | 4.18 ± 0.64 | 0 ± 0 | 0 ± 0 | 0.17 ± 0.1 | 0.44 ± 0.11 |
| Root | 0 ± 0 | 0.12 ± 0.12 | 0 ± 0 | 3.58 ± 1.1 | 0 ± 0 | 1.3 ± 0.77 | 0.78 ± 0.41 | 2.15 ± 0.58 |
| *S. tournefortii* | Leaf | 0.49 ± 0.02 | 4.85 ± 1 | 0.53 ± 0.13 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0.06 ± 0.06 |
| Stem | 0.01 ± 0.01 | 0.16 ± 0.05 | 0.28 ± 0.07 | 0.08 ± 0.04 | 0 ± 0 | 0.06 ± 0.03 | 0.13 ± 0.05 | 2.43 ± 0.66 |
| Root | 0 ± 0 | 0.09 ± 0.04 | 0.13 ± 0.06 | 0.93 ± 0.08 | 0.08 ± 0.01 | 1.24 ± 0.14 | 2.33 ± 0.2 | 7.61 ± 0.15 |
| *S. wrightii* | Leaf | 1.35 ± 0.17 | 0.69 ± 0.02 | 9.61 ± 2.54 | 13.94 ± 0.86 | 0.46 ± 0.09 | 0.51 ± 0.11 | 0 ± 0 | 0 ± 0 |
| Stem | 0.04 ± 0.04 | 0 ± 0 | 0.23 ± 0.16 | 16.87 ± 8.1 | 0.28 ± 0.1 | 8.52 ± 3.27 | 0.01 ± 0.01 | 0.2 ± 0.05 |
| Root | 0 ± 0 | 0 ± 0 | 5.73 ± 1.11 | 85.75 ± 11.2 | 0.3 ± 0.08 | 6.83 ± 0.24 | 0.38 ± 0.09 | 3.67 ± 1.22 |