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| **Table S1.** Herbarium information for all tissue samples used for metabolite measurements. | | | | | |
| **#** | **Species** | **Condition** | **Organ** | **Herbarium** | **Voucher label** |
| 1 | *S. alpina* | Dried | Leaf, stem | Steere Herbarium, NY, USA | T. H. Everett s. n. (NY) |
| 2 | *S. altissima* | Dried | Leaf | Steere Herbarium, NY, USA | M. Churadze 1007 (NY) |
| 3 | *S. altissima* | Fresh | Leaf, stem, root | To be submitted | FLAS |
| 4 | *S. angulosa* | Dried | Leaf | Steere Herbarium, NY, USA | K. M. Naid s. n. (NY) |
| 5 | *S. angustifolia* | Dried | Leaf | Steere Herbarium, NY, USA | R. Olmstead 558 (NY) |
| 6 | *S. angustifolia ssp. micrathum* | Dried | Leaf | Steere Herbarium, NY, USA | A. Tiehm 16758 (NY) |
| 7 | *S. antirrhinoides* | Dried | Leaf | Steere Herbarium, NY, USA | N. D. Atwood 28625 (NY) |
| 8 | *S. arenicola* | Dried | Leaf | University of Florida Herbarium, FL, USA | Paul Corogin SB104 (FLAS) |
| 9 | *S. arenicola* | Dried | Leaf | University of Florida Herbarium, FL, USA | D. B. Wand 6711 (FLAS) |
| 10 | *S. astinae* | Dried | Leaf, stem | Steere Herbarium, NY, USA | J. T. Howell 38532 (NY) |
| 11 | *S. baicalensis* | Fresh | Leaf, stem, root | To be submitted | FLAS |
| 12 | *S. barbata* | Fresh | Leaf, stem, root | Sungshin Herbarium, Seoul, Republic of Korea | S. Kim 2019-056 (SWU) |
| 13 | *S. blepharophylla* | Dried | Stem | Steere Herbarium, NY, USA | G. B. Hinton 1086 (NY) |
| 14 | *S. brittonii* | Dried | Leaf | Steere Herbarium, NY, USA | S. P. Churchill 7376 (NY) |
| 15 | *S. californica* | Dried | Leaf | Steere Herbarium, NY, USA | R. Olmstead 434 (NY) |
| 16 | *S. coccinea* | Dried | Leaf | Steere Herbarium, NY, USA | D. Cardenas et al. 42257 (NY) |
| 17 | *S. coerulea* | Dried | Leaf | Steere Herbarium, NY, USA | T. S. Quedensley 10037 (NY) |
| 18 | *S. costaricana* | Dried | Leaf, stem | Steere Herbarium, NY, USA | A. Cronquist 8834 (NY) |
| 19 | *S. dependens* | Fresh | Leaf, stem, root | Sungshin Herbarium, Seoul, Republic of Korea | S. Kim 2019-065 (SWU) |
| 20 | *S. discolor* | Dried | Leaf | Steere Herbarium, NY, USA | A. A. Bullock 740 (NY) |
| 21 | *S. drumondii* | Dried | Stem | Steere Herbarium, NY, USA | L. C. Higgins 17229 (NY) |
| 22 | *S. elliptica* | Dried | Leaf | University of Florida Herbarium, FL, USA | Nancy Coile 5213 (FLAS) |
| 23 | *S. epilobiifolia* | Dried | Leaf, stem | Steere Herbarium, NY, USA | C. E. Garton 22860 (NY) |
| 24 | *S. formosa* | Dried | Leaf, stem | Steere Herbarium, NY, USA | H. et al. 11073 (NY) |
| 25 | *S. fruticosa* | Dried | Leaf | Steere Herbarium, NY, USA | H. Field & Y. Lazar s. n. (NY) |
| 26 | *S. galericulata* | Dried | Leaf, stem | Steere Herbarium, NY, USA | D. Erskine & A. J. Smith 2118 (NY) |
| 27 | *S. glabriuscula* | Dried | Leaf | Steere Herbarium, NY, USA | R. Kral s. n. (NY) |
| 28 | *S. guatemalensis* | Dried | Stem | Steere Herbarium, NY, USA | D. Alvarez 11028 (NY) |
| 29 | *S. havanensis* | Dried | Stem | Steere Herbarium, NY, USA | J. K. Small s. n. (NY) |
| 30 | *S. heydei* | Dried | Leaf | Steere Herbarium, NY, USA | W. Koelz 6242 (NY) |
| 31 | *S. hispidula* | Dried | Stem | Steere Herbarium, NY, USA | R. D. Worthington 12501 (NY) |
| 32 | *S. holmgreniorum* | Dried | Leaf, stem | Steere Herbarium, NY, USA | G. Schoolcraft 1222 (NY) |
| 33 | *S. hookeri* | Dried | Leaf, stem | Steere Herbarium, NY, USA | L. O. Willioms et al. 28585 (NY) |
| 34 | *S. incana* | Dried | Leaf | Steere Herbarium, NY, USA | R. D. Thomas 150388 (NY) |
| 35 | *S. indica var. coccinea* | Fresh | Leaf, stem, root | Sungshin Herbarium, Seoul, Republic of Korea | S. Kim & S. T. Lee 2015-0298 (SWU) |
| 36 | *S. insignis* | Fresh | Leaf, stem, root | Sungshin Herbarium, Seoul, Republic of Korea | S. Kim 2015-0110 (SWU) |
| 37 | *S. integrifolia* | Dried | Leaf | University of Florida Herbarium, FL, USA | Kimberely Gulledge 25 (FLAS) |
| 38 | *S. isocheila* | Dried | Leaf, stem | Steere Herbarium, NY, USA | A. M. Brenes s. n. (NY) |
| 39 | *S. javalambrensis* | Dried | Stem | Steere Herbarium, NY, USA | A. Charpin et al. s. n. (NY) |
| 40 | *S. javanica* | Dried | Leaf | Steere Herbarium, NY, USA | S. K. Lau 1915 (NY) |
| 41 | *S. lateriflora* | Dried | Leaf | Steere Herbarium, NY, USA | G. F. Buddell II 2352 (NY) |
| 42 | *S. leonardii* | Dried | Stem | Steere Herbarium, NY, USA | J. C. Arthwz s. n. (NY) |
| 43 | *S. leonardii* | Fresh | Leaf, stem, root | To be submitted | FLAS |
| 44 | *S. leptosiplonsipkon* | Dried | Leaf | Steere Herbarium, NY, USA | L. Maplcoba s. n. (NY) |
| 45 | *S. longifolia* | Dried | Leaf, stem | Steere Herbarium, NY, USA | J. J. Castillo & J. M. Vargas 2722 (NY) |
| 46 | *S. lutea* | Dried | Stem | Steere Herbarium, NY, USA | Jorge A. Molina 30005 (NY) |
| 47 | *S. lutilaba* | Dried | Leaf, stem | Steere Herbarium, NY, USA | Hinton et al. 21760 (NY) |
| 48 | *S. microphylla* | Dried | Leaf, stem, root | Steere Herbarium, NY, USA | H. D. Ripley 14966 (NY) |
| 49 | *S. multicularis* | Dried | Stem | Steere Herbarium, NY, USA | Assadi, Edmondson & Miller 2135 (NY) |
| 50 | *S. multiglandulosa* | Dried | Leaf | Steere Herbarium, NY, USA | D. S. Correll & H. B. Correll 51703 (NY) |
| 51 | *S. multiglandulosa* | Dried | Leaf | University of Florida Herbarium, FL, USA | Hillary M. Cherry 270 (FLAS) |
| 52 | *S. muriculata* | Dried | Stem | Steere Herbarium, NY, USA | C. L. Lundell 14978 (NY) |
| 53 | *S. oblonga* | Dried | Leaf | Steere Herbarium, NY, USA | L. H. Cramer 4871 (NY) |
| 54 | *S. orientalis* | Dried | Leaf, stem | Steere Herbarium, NY, USA | E. Serowa & E. Ryschowa s. n. (NY) |
| 55 | *S. ovata* | Dried | Leaf | Steere Herbarium, NY, USA | R. D. Thomas et al. 170488 (NY) |
| 56 | *S. parvula* | Dried | Leaf, stem | Steere Herbarium, NY, USA | R. D. Thomas & C. Slaughter 103883 (NY) |
| 57 | *S. paucifolia* | Dried | Stem | Steere Herbarium, NY, USA | P. Jaeger 8796 (NY) |
| 58 | *S. pekinensis var. alpina* | Fresh | Leaf, stem, root | Sungshin Herbarium, Seoul, Republic of Korea | S. Kim 2015-0268 (SWU) |
| 59 | *S. peregrina* | Dried | Leaf | Steere Herbarium, NY, USA | H. Field & Y. Lazar s. n. (NY) |
| 60 | *S. pinnatifida* | Dried | Stem | Steere Herbarium, NY, USA | K. H. Rechinger 686 (NY) |
| 61 | *S. potosina* | Dried | Leaf, stem | Steere Herbarium, NY, USA | D. S. Correll & H. B. Correll 30562 (NY) |
| 62 | *S. prostrata* | Dried | Stem | Steere Herbarium, NY, USA | W. Koelz 21180 (NY) |
| 63 | *S. przewalskii* | Dried | Stem | Steere Herbarium, NY, USA | L. Janczenko s. n. (NY) |
| 64 | *S. pseudoserrata* | Dried | Leaf | Steere Herbarium, NY, USA | R. Kral s. n. (NY) |
| 65 | *S. pulchella* | Dried | Root | Steere Herbarium, NY, USA | R. Schischkin et al. s. n. (NY) |
| 66 | *S. purpurascens* | Dried | Stem | Steere Herbarium, NY, USA | A. M. Brenes s. n. (NY) |
| 67 | *S. racemosa* | Dried | Stem | University of Florida Herbarium, FL, USA | s. n. (FLAS) |
| 68 | *S. racemosa* | Fresh | Leaf, stem, root | To be submitted | FLAS |
| 69 | *S. relenorskyi* | Dried | Leaf | Steere Herbarium, NY, USA | A. Donmez 3627 (NY) |
| 70 | *S. resinosa* | Dried | Leaf, stem | Steere Herbarium, NY, USA | G. C. Freeman & R. E. Brooks 3682 (NY) |
| 71 | *S. sapphirina* | Dried | Leaf, stem | Steere Herbarium, NY, USA | S. L. Welsh 20585 (NY) |
| 72 | *S. scordiifolia* | Dried | Stem | Steere Herbarium, NY, USA | H. H. Iltis et al. 307 (NY) |
| 73 | *S. seleriana* | Dried | Stem | Steere Herbarium, NY, USA | C. G. Pringle s. n. (NY) |
| 74 | *S. serrata* | Dried | Leaf | Steere Herbarium, NY, USA | J. J. Carter s. n. (NY) |
| 75 | *S. siphocampuloides* | Dried | Leaf, stem | Steere Herbarium, NY, USA | S. D. White 4380 (NY) |
| 76 | *S. splendens* | Dried | Leaf | Steere Herbarium, NY, USA | A. Villegas H. 00063 (NY) |
| 77 | *S. strigillosa* | Fresh | Leaf, stem, root | Sungshin Herbarium, Seoul, Republic of Korea | S. Kim 20140705 (SWU) |
| 78 | *S. suffrutescens* | Dried | Stem | Steere Herbarium, NY, USA | J. L. Reveal 3390 (NY) |
| 79 | *S. suffrutescens* | Fresh | Leaf, stem, root | To be submitted | FLAS |
| 80 | *S. sumatrana* | Dried | Leaf | Steere Herbarium, NY, USA | C. Hamel & R. S. Toroes 767 (NY) |
| 81 | *S. tessellata* | Dried | Leaf, stem | Steere Herbarium, NY, USA | R. D. Worthington 13323 (NY) |
| 82 | *S. tournefortii* | Fresh | Leaf, stem, root | To be submitted | FLAS |
| 83 | *S. wrightii* | Fresh | Leaf, stem, root | To be submitted | FLAS |