**Supporting information Table S1**. List of the 112 species and 104 publications used in the meta-analysis. Taxonomic and classification information is from the Taxonomic Name Resolution Service (v4.0) and USDA-NRCS Plants databases.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Accepted name** | **Accepted authorA** | **Accepted family** | **Group** | **DurationB** | **Growth habitC** | **Reference** |
| *Aegiceras corniculatum* | (L.) Blanco | Primulaceae | Dicot | Perennial | Shrub/Tree | Ball and Farquhar (1984); Ball (1988) |
| *Aeschynanthus hybr.* | — | Gesneriaceae | Dicot | — | — | Schussler (1992) |
| *Ageratum houstonianum* | Mill. | Asteraceae | Dicot | Annual/Perennial | Forb/Herb | Krizek et al. (1971) |
| *Allium cepa* | L. | Amaryllidaceae | Monocot | Perennial | Forb/Herb | Hoffman and Rawlins (1971) |
| *Alstonia scholaris* | (L.) R. Br. | Apocynaceae | Dicot | — | — | Cunningham (2005); Cunningham (2006) |
| *Arabidopsis thaliana* | (L.) Heynh. | Brassicaceae | Dicot | Annual | Forb/Herb | Lake and Woodward (2008); Aliniaeifard et al. (2014); Arve et al. (2017) |
| *Arachis hypogaea* | L. | Fabaceae | Dicot | Annual/Perennial | Forb/Herb | Lee et al. (1972); Mortley et al. (2000) |
| *Argyrodendron trifoliolatum* | F.Muell. | Malvaceae | Dicot | Perennial | Tree | Cunningham (2005); Cunningham (2006) |
| *Atriplex spongiosa* | F.Muell. | Amaranthaceae | Dicot | — | — | Salim (1989) |
| *Avicennia marina subsp. australasica* | (Walp.) J.Everett | Acanthaceae | Dicot | Perennial | Shrub/Tree | Ball and Farquhar (1984); Ball (1988) |
| *Begonia × hiemalis Fotsch* | — | Begoniaceae | Dicot | — | — | Mortensen (1986); Gislerød et al. (1987); Gislerød and Mortensen (1990) |
| *Begonia cheimantha* | — | Begoniaceae | Dicot | — | — | Mortensen (2000) |
| *Begonia reniformis* | Dryand. | Begoniaceae | Dicot | — | — | Schussler (1992) |
| *Beta vulgaris* | L. | Amaranthaceae | Dicot | Annual/Biennial | Forb/Herb | Hoffman and Rawlins (1971); Ford and Thorne (1974); Milford and Lawlor (1975) |
| *Betula pendula* | Roth | Betulaceae | Dicot | Perennial | Tree | Sellin et al. (2013); Parts et al. (2013); Rosenvald et al. (2014); Sellin et al. (2015); Lihavainen et al. (2016a); Lihavainen et al. (2016b); Kupper et al. (2017); Lihavainen et al. (2017) |
| *Brachypodium sylvaticum* | (Huds.) P.Beauv. | Poaceae | Monocot | Perennial | Graminoid | Leuschner (2002) |
| *Brassica oleracea* | L. | Brassicaceae | Dicot | Perennial | Forb/Herb | Ford and Thorne (1974) |
| *Campanula isophylla* | Moretti | Campanulaceae | Dicot | Perennial | Forb/Herb | Mortensen (1986) |
| *Campanula trachelium* | L. | Campanulaceae | Dicot | Perennial | Forb/Herb | Leuschner (2002) |
| *Capsicum annuum* | L. | Solanaceae | Dicot | Annual/Perennial | Forb/Herb/Subshrub | Bakker (1991); Zabri and Burrage (1998) |
| *Castanospermum australe* | Cunn. and C. Fraser ex Hook. | Fabaceae | Dicot | Perennial | Tree | Cunningham (2005); Cunningham (2006) |
| *Chlorophytum comosum* | (Thunb.) Jacques | Asparagaceae | Monocot | Perennial | Forb/Herb | Mortensen and Gislerød (1990) |
| *Chrysanthemum indicum* | L. | Asteraceae | Dicot | — | — | Schussler (1992) |
| *Chrysanthemum morifolium* | Ramat | Asteraceae | Dicot | Perennial | Shrub/Subshrub | Mortensen (1986); Gislerød et al. (1987); Gislerød and Nelson (1989); Mortensen (2000) |
| *Cirsium arvense* | (L.) Scop. | Asteraceae | Dicot | Perennial | Forb/Herb | Hunter et al. (1985) |
| *Cissus alata* | Jacq. | Vitaceae | Dicot | Perennial | Vine | Mortensen and Gislerød (1990) |
| *Cleistogenes squarrosa* | (Trin. ex Ledeb.) Keng | Poaceae | Monocot | — | Graminoid | Gong et al. (2017) |
| *Codiaeum variegatum* | (L.) Rumph. ex A.Juss. | Euphorbiaceae | Dicot | Perennial | Shrub/Tree | Mortensen and Gislerød (1990) |
| *Cucumis melo* | L. | Cucurbitaceae | Dicot | Annual | Forb/Herb/Vine | An et al. (2002) |
| *Cucumis sativus* | L. | Cucurbitaceae | Dicot | Annual | Forb/Herb/Vine | Mortensen (1986); Bakker (1991); van de Sanden and Veen (1992); Shibuya et al. (2017); Shibuya et al. (2018) |
| *Dieffenbachia seguine* | (Jacq.) Schott | Araceae | Monocot | Perennial | Forb/Herb | Mortensen and Gislerød (1990) |
| *Digitalis purpurea* | L. | Plantaginaceae | Dicot | Biennial | Forb/Herb | Leuschner (2002) |
| *Doritaenopsis* | — | Orchidaceae | Monocot | — | — | Jeon et al. (2006); Lee et al. (2018) |
| *Dracaena fragrans* | (L.) Ker Gawl. | Asparagaceae | Monocot | Perennial | Shrub/Tree | Mortensen and Gislerød (1990) |
| *Epipremnum pinnatum* | (L.) Engl. | Araceae | Monocot | Perennial | Forb/Herb/Vine | Mortensen and Gislerød (1990) |
| *Eucryphia lucida* | (Labill.) Baill. | Cunoniaceae | Dicot | Perennial | Shrub/Tree | Cunningham (2005); Cunningham (2006) |
| *Euphorbia pulcherrima* | Willd. ex Klotzsch | Euphorbiaceae | Dicot | Perennial | Shrub/Tree | Mortensen (1986); Gislerød et al. (1987); Schussler (1992); Mortensen (2000) |
| *Fagus sylvatica* | L. | Fagaceae | Dicot | Perennial | Tree | Lendzion and Leuschner (2008) |
| *Fatsia japonica* | (Thunb.) Decne. & Planch. | Araliaceae | Dicot | — | — | Mortensen and Gislerød (1990) |
| *Festuca arundinacea* | Schreb. | Poaceae | Monocot | Perennial | Graminoid | Sinclair et al. (2007) |
| *Ficus benjamina* | L. | Moraceae | Dicot | Perennial | Shrub/Tree | Mortensen and Gislerød (1990) |
| *Ficus elastica* | Roxb. ex Hornem. | Moraceae | Dicot | Perennial | Tree | Mortensen and Gislerød (1990) |
| *Ficus pumila* | L. | Moraceae | Dicot | Perennial | Forb/Herb/Vine | Mortensen and Gislerød (1990) |
| *Geum urbanum* | L. | Rosaceae | Dicot | Perennial | Forb/Herb | Leuschner (2002) |
| *Glycine max* | (L.)Merr. | Fabaceae | Dicot | Annual | Forb/Herb | Woodward and Begg (1976); An et al. (2001); Roriz et al. (2014); Devi et al. (2015) |
| *Gossypium hirsutum* | L. | Malvaceae | Dicot | Annual/Perennial | Shrub/Subshrub/Tree | Hoffman et al. (1971) |
| *Hedera helix* | L. | Araliaceae | Dicot | Perennial | Vine | Mortensen and Gislerød (1990) |
| *Helianthus annuus* | L. | Asteraceae | Dicot | Annual | Forb/Herb | Salim (1989) |
| *Hieracium sylvaticum* | (L.) L. | Asteraceae | Dicot | — | — | Leuschner (2002) |
| *Hordelymus europaeus* | (L.) Jess. ex Harz | Poaceae | Monocot | Perennial | Graminoid | Leuschner (2002) |
| *Hordeum vulgare* | L. | Poaceae | Monocot | Annual | Graminoid | Hoffman and Jobes (1978) |
| *Hydrangea macrophylla* | (Thunb.) Ser. | Hydrangeaceae | Dicot | — | — | Codarin et al. (2006) |
| *Impatiens New Guinea hybr.* | — | Balsaminaceae | Dicot | Perennial | Forb/Herb | Schussler (1992) |
| *Ipomoea batatas* | (L.) Lam. | Convolvulaceae | Dicot | Annual/Perennial | Forb/Herb/Vine | Mortley et al. (1994) |
| *Jatropha curcas* | L. | Euphorbiaceae | Dicot | Perennial | Shrub/Tree | Rodrigues et al. (2016) |
| *Kalanchoe blossfeldiana* | Poelln. | Crassulaceae | Dicot | Perennial | Forb/Herb | Schussler (1992); Mortensen (2000) |
| *Lactuca sativa* | L. | Asteraceae | Dicot | Annual/Biennial/Perennial | Forb/Herb | Tibbitts and Bottenberg (1976); (Collier and Tibbitts, 1984); Mortensen (1986) |
| *Lupinus albus* | L. | Fabaceae | Dicot | Annual | Forb/Herb | Withers (1979) |
| *Malus pumila* | Mill. | Rosaceae | Dicot | Perennial | Tree | Tromp and Oele (1972) |
| *Maranta leuconeura* | E.Morren | Marantaceae | Monocot | — | — | Mortensen and Gislerød (1990) |
| *Medicago sativa* | L. | Fabaceae | Dicot | Annual/Perennial | Forb/Herb | De Luis et al. (2002) |
| *Mercurialis perennis* | L. | Euphorbiaceae | Dicot | Perennial | Forb/Herb | Lendzion and Leuschner (2009) |
| *Monstera deliciosa* | Liebm. | Araceae | Monocot | Perennial | Forb/Herb/Vine | Mortensen and Gislerød (1990) |
| *Nephrolepis cordifolia* | (L.) C. Presl | Davalliaceae | Fern | Perennial | Forb/Herb | Mortensen and Gislerød (1990) |
| *Nephrolepis exaltata* | (L.) Schott | Davalliaceae | Fern | Perennial | Forb/Herb | Mortensen (1986); Gislerød et al. (1987) |
| *Nothofagus cunninghamii* | (Hook.) Oerst. | Nothofagaceae | Dicot | Perennial | Tree | Cunningham (2005); Cunningham (2006); Hovenden et al. (2012) |
| *Oryza glaberrima* | Steud. | Poaceae | Monocot | Annual | Graminoid | Parent et al. (2010) |
| *Oryza sativa* | L. | Poaceae | Monocot | Annual | Graminoid | Parent et al. (2010) |
| *Panicum coloratum* | L. | Poaceae | Monocot | Perennial | Graminoid | Seneweera et al. (1998) |
| *Pellaea rotundifolia* | (G. Forst.) Hook. | Pteridaceae | Fern | Perennial | Forb/Herb | Mortensen and Gislerød (1990) |
| *Peperomia rotundifolia* | (L.) Kunth | Piperaceae | Dicot | Perennial | Forb/Herb/Vine | Mortensen and Gislerød (1990) |
| *Petunia hybrida* | Vilm. | Solanaceae | Dicot | Annual/Perennial | Forb/Herb | Krizek et al. (1971) |
| *Phalaenopsis* | — | Orchidaceae | Monocot | — | — | Cha-um et al. (2010); Kim et al. (2018); Lee et al. (2018) |
| *Phaseolus vulgaris* | L. | Fabaceae | Dicot | Annual | Forb/Herb/Vine | Salim (1989) |
| *Philodendron hederaceum* | (Jacq.) Schott | Araceae | Monocot | Perennial | Forb/Herb/Vine | Mortensen and Gislerød (1990) |
| *Picea glauca* | (Moench) Voss | Pinaceae | Gymnosperm | Perennial | Tree | Roberts and Zwiazek (2001) |
| *Picea mariana* | (Mill.) Britton, Sterns & Poggenb. | Pinaceae | Gymnosperm | Perennial | Tree | Darlington et al. (1997) |
| *Pinus banksiana* | Lamb. | Pinaceae | Gymnosperm | Perennial | Tree | Darlington et al. (1997) |
| *Populus nigra* | L. | Salicaceae | Dicot | Perennial | Tree | Rasheed et al. (2015) |
| *Populus tremula L. × P. tremuloides Michx.* | Michx. | Salicaceae | Dicot | Perennial | Tree | Tullus et al. (2012); Rosenvald et al. (2014); Jasińska et al. (2015); Lihavainen et al. (2016a) |
| *Prunus armeniaca* | L. | Rosaceae | Dicot | Perennial | Tree | Gradziel and Weinbaum (1999) |
| *Prunus dulcis* | (Mill.) D.A.Webb | Rosaceae | Dicot | Perennial | Tree | Gradziel and Weinbaum (1999) |
| *Prunus persica* | (L.) Batsch | Rosaceae | Dicot | Perennial | Tree | Gradziel and Weinbaum (1999) |
| *Radermachera sinica* | (Hance) Hemsl. | Bignoniaceae | Dicot | Perennial | Tree | Mortensen and Gislerød (1990) |
| *Raphanus raphanistrum subsp. sativus* | (L.) Domin | Brassicaceae | Dicot | Annual/Biennial | Forb/Herb | Hoffman and Rawlins (1971) |
| *Rhizophora apiculata* | Blume | Rhizophoraceae | Dicot | Perennial | Tree | Ball et al. (1997) |
| *Rhizophora stylosa* | Griff. | Rhizophoraceae | Dicot | Perennial | Tree | Ball et al. (1997) |
| *Rosa × hybrida* | — | Rosaceae | Dicot | Perennial | Shrub/Subshrub | Mortensen (1986); Mortensen et al. (2001); Torre et al. (2003); Fanourakis et al. (2011); Arve et al. (2013); Fanourakis et al. (2013); Giday et al. (2013) |
| *Rumex sanguineus* | L. | Polygonaceae | Dicot | Perennial | Forb/Herb | Leuschner (2002) |
| *Saintpaulia ionantha* | H.Wendl. | Gesneriaceae | Dicot | Perennial | Forb/Herb | Mortensen (1986); Gislerød et al. (1987); Schussler (1992) |
| *Saxifraga stolonifera* | Curtis | Saxifragaceae | Dicot | Perennial | Forb/Herb | Mortensen and Gislerød (1990) |
| *Schefflera actinophylla* | (Endl.) Harms | Araliaceae | Dicot | Perennial | Tree | Mortensen and Gislerød (1990) |
| *Schefflera arboricola* | (Hayata) Merr. | Araliaceae | Dicot | Perennial | Shrub/Tree | Mortensen and Gislerød (1990) |
| *Scrophularia nodosa* | L. | Scrophulariaceae | Dicot | Perennial | Forb/Herb | Leuschner (2002) |
| *Sloanea woollsii F. Muell. (Elaeocarpaceae)* | — | Elaeocarpaceae | Dicot | Perennial | Tree | Cunningham (2005); Cunningham (2006) |
| *Solanum lycopersicum* | Mill. | Solanaceae | Dicot | Annual/Perennial | Forb/Herb | Armstrong and Kirkby (1979); Mortensen (1986); Gislerød et al. (1987); Salim (1989); Bakker (1991); Schussler (1992); Lopez et al. (1998); Gautier et al. (1999); Bertin (2000); Mulholland et al. (2000); Mulholland et al. (2001); Lorenzo et al. (2003); An et al. (2005); Lu et al. (2015); Zhang et al. (2015); Arve et al. (2017); Zhang et al. (2017); Du et al. (2018) |
| *Solanum tuberosum* | L. | Solanaceae | Dicot | Perennial | Forb/Herb/Subshrub | Wheeler et al. (1989) |
| *Soleirolia soleirolii* | (Req.) Dandy | Urticaceae | Dicot | Perennial | Forb/Herb | Mortensen (1986) |
| *Spinacia Oleracera* | L. | Amaranthaceae | Dicot | Annual | Forb/Herb | Iwabuchi et al. (1996) |
| *Stachys sylvatica* | L. | Lamiaceae | Dicot | Perennial | Forb/Herb | Lendzion and Leuschner (2009) |
| *Syngonium podophyllum* | Schott | Araceae | Monocot | Perennial | Vine | Mortensen and Gislerød (1990) |
| *Syzygium smithii* | (Poir.) Nied. | Myrtaceae | Dicot | Perennial | Tree | Cunningham (2005); Cunningham (2006) |
| *Tagetes erecta* | L. | Asteraceae | Dicot | Annual | Forb/Herb | Krizek et al. (1971) |
| *Theobroma cacao* | L. | Malvaceae | Dicot | Perennial | Tree | Salef (1970) |
| *Toona ciliata* | M.Roem. | Meliaceae | Dicot | Perennial | Tree | Carins Murphy et al. (2014) |
| *Tradescantia virginiana* | L. | Commelinaceae | Monocot | Perennial | Forb/Herb | Rezaei Nejad and van Meeteren (2005); Rezaei Nejad et al. (2006); Rezaei Nejad and van Meeteren (2007); Rezaei Nejad and van Meeteren (2008) |
| *Tristaniopsis laurina* | (Sm.) Peter G.Wilson & J.T.Waterh. | Myrtaceae | Dicot | Perennial | Tree | Cunningham (2005); Cunningham (2006) |
| *Triticum aestivum* | L. | Poaceae | Monocot | Annual | Graminoid | Ford and Thorne (1974); Hoffman and Jobes (1978); Rashid et al. (2018) |
| *Vicia faba* | L. | Fabaceae | Dicot | Annual | Forb/Herb/Vine | Aliniaeifard et al. (2014) |
| *Vigna radiata* | (L.) R.Wilczek | Fabaceae | Dicot | Annual | Forb/Herb | Salim (1989) |
| *Yucca aloifolia* | L. | Asparagaceae | Monocot | Perennial | Shrub/Tree | Mortensen and Gislerød (1990) |
| *Zea mays* | L. | Poaceae | Monocot | Annual | Graminoid | Hoffman and Jobes (1978); Ben Haj Salah and Tardieu (1996); Ben Haj Salah and Tardieu (1997); Reymond et al. (2003); Reymond et al. (2004); Sadok et al. (2007); Welcker et al. (2011); Turc et al. (2016) |

A—: no author name was identified in the database or database returned “No opinion” regarding the taxonomic status.

B,C—: unavailable information.



**Figure S1**. General procedure followed for identified the records used the in the meta-analysis.

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