

REFERENCES

- Bengough, A.G. et al. (2011). Root elongation, water stress, and mechanical impedance: a review of limiting stresses and beneficial root tip traits. *Journal of Experimental Botany*, 62(1), 59–68.
- Bloom, A. J. et al. (1985). Resource limitation in plants An economic analogy. *Annual Review of Ecology, Evolution and Systematics*, 16, 363–392. <https://doi.org/10.1146/annurev.es.16.110185.002051>
- Brusch, P. et al. (2003). Within and among tree variation in leaf morphology of *Quercus petraea* (Matt.) Liebl. Natural populations. *Trees*, 17, 164–172. DOI: 10.1007/s00468-002-0218-y
- Bunn, S.M. et al. (2004). Leaf-level productivity traits in *Populus* grown in short rotation coppice for biomass energy. *Forestry*, 77, 307-323. <https://doi.org/10.1093/forestry/77.4.307>
- Chitwood, D.H. et al. (2013). A quantitative genetic basis for leaf morphology in a set of precisely defined tomato introgression lines. *Plant Cell*, 25, 2465–2481. <https://doi.org/10.1105/tpc.113.112391>
- Colema, J. S. et al. (1994). Interpreting phenotypic variation in plants. *Ecology and Evolution*, (Personal Edition) 9, 187-191. [https://doi.org/10.1016/0169-5347\(94\)90087-6](https://doi.org/10.1016/0169-5347(94)90087-6)
- Cornu, M. (1897). Note on the structure of Moroccan argan fruits (*Argania syderoxydon* (L.) Skeels). *Bulletin de la Société Botanique de France*, 44, 181-187. <https://doi.org/10.1080/00378941.1897.10830758>
- Crick, J. C. and Grime, J.P. (1987). Morphological plasticity and mineral nutrient capture in two herbaceous species of contrasted ecology. *New Phytologist*, 107, 403–414. <https://doi.org/10.1111/j.1469-8137.1987.tb00192.x>
- Dong, M., et al. (1996). Morphological responses to nutrient availability in four clonal herbs. *Vegetatio*, 123, 183–192. <https://doi.org/10.1007/BF00118270>
- Donovan, L.A. et al. (2011). The evolution of the world wide leaf economics spectrum. *Trends in Ecology and Evolution*, 26, 88–95. <https://doi.org/10.1016/j.tree.2010.11.011>
- Dryden, I.L. and Mardia, K.V. (1998). *Statistical Shape Analysis*. Wiley, Chichester. DOI: [https://doi.org/10.1002/1097-0258\(20001015\)19:19%3C2716::AID-SIM590%3E3.0.CO;2-O](https://doi.org/10.1002/1097-0258(20001015)19:19%3C2716::AID-SIM590%3E3.0.CO;2-O)
- Dudley, S.A. and Schmitt, J. (1995). Genetic differentiation in morphological responses to simulated foliage shade between populations of *Impatiens capensis* from open and woodland sites. *Functional Ecology*, 9, 655-66. <https://doi.org/10.2307/2390158>
- El Aboudi, A. (1990). Typology of sub-Mediterranean arganeraies and ecophysiology of the argan tree (*Argania spinosa* (L.) Skeels) in Souss region (Morocco). PhD thesis, Es-Sciences in University Joseph Fourier, Grenoble, France. (pp. 133).
- El Aich, A. et al. (2007). Ingestive behaviour of grazing goats in the southwestern argan forest of Morocco. *Small Ruminant Research*, 70(2-3), 248-256. <https://doi.org/10.1016/j.smallrumres.2006.03.011>
- Giles Young I.A. et al. (2017). Analysing phenotypic variation in *Eucalyptus pauciflora* across an elevation gradient in the Australian Alps. *Researching functional ecology in Kosciuszko National Park. Field Studies in Ecology*, 1, 17-25. [dx.doi.org/10.22459/RFEKNP.11.2017.02](https://doi.org/10.22459/RFEKNP.11.2017.02)
- Gratani, L. (2014). Plant phenotypic plasticity in response to environmental factors. *Advances in Botany*, 2014, ID 208747. <https://doi.org/10.1155/2014/208747>.
- Guét, J. et al. (2015). Genetic variation for leaf morphology, leaf structure and leaf carbon isotope discrimination in European populations of black poplar (*Populus nigra* L.). *Tree Physiology*, 35, 850–863. <https://doi.org/10.1093/treephys/tpv056>
- Hajlaoui, I. et al. (2007). Effets des basses températures et de la photopériode sur la croissance et le développement inflorescentiel du fraisier non remontant. *Tropicicultura*, 25(2), 82-86.
- Hendrickson, L. et al. (2004). Low temperature effects on photosynthesis and growth of grapevine. *Plant Cell Environment*, 27, 795–809. <https://doi.org/10.1111/j.1365-3040.2004.01184.x>

- Ibañez, C. et al. (2017). Ambient temperature and genotype differentially affect developmental and phenotypic plasticity in *Arabidopsis thaliana*. *BMC Plant Biology*, 17(1), 114. DOI: 10.1186/s12870-017-1068-5
- Iwaizumi, R. et al. (1997). Correlation of length of terminalia of males and females among nine species of *Bactrocera* (Diptera: Tephritidae) and differences among sympatric species of *B. dorsalis* complex. *Annals of the Entomological Society of America*, 90, 664–66
- Joel, G. et al. (1994). Leaf morphology along environmental gradients in Hawaiian *Metrosideros polymorpha*. *Biotropica*, 26, 17-22. <https://doi.org/10.2307/2389106>
- Klingenberg, C. P. (2011). MorphoJ: an integrated software package for geometric morphometrics. *Molecular Ecology Resources*, 11(2), 353–357. <https://doi.org/10.1111/j.1755-0998.2010.02924.x>
- Klingenberg, C. P. et al. (2002). Shape analysis of symmetric structures: quantifying variation among individuals and asymmetry. *Evolution*, 56, 1909–1920. <https://doi.org/10.1111/j.0014-3820.2002.tb00117.x>
- Klingenberg, C.P. and McIntyre, G.S. (1998). Geometric morphometrics of developmental instability: analyzing patterns of fluctuating asymmetry with Procrustes methods. *Evolution*, 52, 1363–1375. <https://doi.org/10.1111/j.1558-5646.1998.tb02018.x>
- Kundu, S. K. and Tigerstedt, P. M. A. (1997). Geographical variation in seed and seedling traits of Neem (*Azadirachta indica* A. Juss.) among ten populations studied in growth chamber. *Silvae Genetica*, 46, 2–3.
- Lande, R. (2009). Adaptation to an extraordinary environment by evolution of phenotypic plasticity and genetic assimilation. *Journal of Evolutionary Biology*, 22(7), 1435–1446. <https://doi.org/10.1111/j.1420-9101.2009.01754.x>
- Langlade, N.B. et al. (2005). Evolution through genetically controlled allometry space. *Proceedings of the National Academy of Sciences of the U.S.A*, 102, 10221–10226. <https://doi.org/10.1073/pnas.0504210102>
- Li, X. et al. (2015). Influences of environmental factors on leaf morphology of Chinese Jujubes. *PLoS ONE*, 10, e0127825. <https://doi.org/10.1371/journal.pone.0127825>
- Marenco, R. A. et al. (2006). Hydraulically based stomatal oscillations and stomatal patchiness in *Gossypium hirsutum*. *Functional Plant Biology*, 33(12), 1103–1113. <https://doi.org/10.1071/FP06115>
- M'hirit, O. et al. (1998). The argan tree, a fruit species, multi-purpose forest Mardaga. Mardaga: Sprimont, Belgique.
- M'hirit, O. (1989). The argan tree : a multipurpose forest fruit tree. Formation Forestière Continue, thème "l'arganier". Rabat: Station de Recherche Forestière, Morocco.
- Pennington, T.D. (1991). The Genera of the Sapotaceae. Kew & London: Kew Publishing, Royal Botanic Gardens.
- Perrot, E. (1907). Shea, Argan and some other succulent Sapotaceae from Africa. *Les végétaux utiles de l'Afrique Tropicale Française, Fascicule II*, 127–158.
- Pigliucci, M. (2001). Phenotypic Plasticity: Beyond Nature and Nurture. Baltimore: Johns Hopkins University Press.
- Possen, B. J. et al. (2014). Variation in 13 leaf morphological and physiological traits within a silver birch (*Betula pendula*) stand and their relation to growth. *Canadian Journal of Forest Research*, 44, 657–665. <https://doi.org/10.1139/cjfr-2013-0493>
- Prendergast, H.D.V. and Walker, C.C. (1992). The argan: multipurpose tree of Morocco. *The Kew Magazine*, 9, 76–85.
- Pyakurel, A. and Wang, J.R. (2013). Leaf morphological variation among paper birch (*Betula papyrifera* Marsh.) genotypes across Canada. *Open Journal of Ecology*, 3, 284. <https://doi.org/10.4236/oje.2013.34033>.

- Rieuf, P. (1962). The Argan tree fungi. *Les Cahiers de la Recherche Agronomique Rabat*, 15, 1–25.
- Rohlf, F. J. (2000). On the use of shape spaces to compare morphometric methods. *Hystrix*, 11, 8–24.
- Rohlf, F.J. (2010). *Tps Series*. Department of Ecology and Evolution, State University of New York, Stony Brook, New York. Available: <http://life.bio.sunysb.edu/morph/>. Accessed 2011 June 8.
- Royer, D. L. et al. (2008). Sensitivity of leaf size and shape to climate within *Acer rubrum* and *Quercus kelloggii*. *New Phytologist*, 179, 808–817. <https://doi.org/10.1111/j.14698137.2008.02496.x>
- Royer, D.L. et al. (2009). Phenotypic plasticity of leaf shape along a temperature gradient in *Acer rubrum*. *PloS ONE*, 10, e7653. <https://doi.org/10.1371/journal.pone.0007653>
- Sauvage, Ch. and Vindt, J. (1952). Flore du Maroc analytique, descriptive et illustrée. Spermatophytes, Fascicule I, Ericales, Primulales, Plombaginales, Ebénales et Contortales. Work of the Cherifien Scientific Institute, Rabat, Morocco. (pp. 83-85).
- Tian, F. et al. (2011). Genome-wide association study of leaf architecture in the maize nested association mapping population. *Nature Genetics*, 43, 159–162. <https://doi.org/10.1038/ng.746>
- Tsukaya, H. (2005). Leaf shape: genetic controls and environmental factors. *The International Journal of Developmental Biology*, 49,547–555. <https://doi.org/10.1387/ijdb.041921ht>
- Uribe-Salas, D. et al. (2008). Foliar morphological variation in the white oak *Quercus rugosa* Née (*Fagaceae*) along a latitudinal gradient in Mexico: Potential implications for management and conservation. *Forest Ecology and Management*, 256, 2121–2126. <https://doi.org/10.1016/j.foreco.2008.08.002>
- Van Kleunen, M. and Fischer, M. (2007). Progress in the detection of costs of phenotypic plasticity in plants. *New Phytologist*, 176(4), 727–730. <https://doi.org/10.1111/j.1469-8137.2007.02296.x>
- Viscosi, V. and Cardini, A. (2011). Leaf Morphology, Taxonomy and Geometric Morphometrics: A Simplified Protocol for Beginners. *PLoS ONE*, 10, e25630. <https://doi.org/10.1371/journal.pone.0025630>
- Warren, C.R. et al. (2005). Does rainfall explain variation in leaf morphology and physiology among populations of red ironbark (*Eucalyptus sideroxylon* subsp. *tricarpa*) grown in a common garden?. *Tree Physiology*, 25, 1369–1378. <https://doi.org/10.1093/treephys/25.11.1369>
- Zahidi, A. et al. (2013). Variability in leaf size and shape in three natural populations of *Argania spinosa* (L.) Skeels. *International Journal of Current Research and Academic Review*, 1, 13–25.