

Conflict of Interest Disclosure

The author affirms that this research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

References

- Baha J.Z., Liu W.H., Ma X.M., Li Y.G., Zhao X., Zhai X., Cao X., and Guo W., 2025, Comprehensive evaluation of 202 cotton varieties (lines) and their physiological drought resistance response during seedling stage, *Plants*, 14(12): 1770.
<https://doi.org/10.3390/plants14121770>
- Cantürk Y.Y., and Özhatay F., 2021, Scape, rhizome and root anatomy of polygonatum species from turkey, *European Journal of Biology*, 80(1): 164-172.
<https://doi.org/10.26650/eurbiol.2021.1026981>
- Cheng W.S., Pan Z.B., Zheng H.J., Luo G.L., Liu Z.B., Xu S., and Lin J., 2023, Characterization of phytochemical profile of rhizome of artificial cultured *Polygonatum sibiricum* with multiple rhizome buds, *Applied Biological Chemistry*, 66(1): 35.
<https://doi.org/10.1186/s13765-023-00792-4>
- Cui X.W., Wang S.Y., Cao H., Guo H.M., Li Y.J., Xu F.X., Zheng M.M., Xi X.Z., and Han C.C., 2018, A review: the bioactivities and pharmacological applications of *Polygonatum sibiricum* polysaccharides, *Molecules*, 23(5): 1170.
<https://doi.org/10.3390/molecules23051170>
- De Melo L.A., De Abreu A.H.M., Leles P., De Oliveira R.R., and Silva D.D.D., 2018, Qualidade e crescimento inicial de mudas de mimosa caesalpiniifolia benth. produzidas em diferentes volumes de recipientes, *Ciência Florestal*, 28(1): 47-55.
<https://doi.org/10.5902/1980509831574>
- De Vitis M., Hay F., Dickie J., Trivedi C., Choi J., and Fiegner R., 2020, Seed storage: maintaining seed viability and vigor for restoration use, *Restoration Ecology*, 28(S3): S249-S255.
<https://doi.org/10.1111/rec.13174>
- El-Hack M.E.A., Rudayni H., Aldhalmi A.K., Alawam A.S., Allam A.A., Khan M.H., and Khafaga A.F., 2025, Recent advances in *Polygonatum sibiricum* polysaccharides: structural insights, bioactivities in vitro and in vivo, and therapeutic potential in human and animal models-a review, *Carbohydrate Polymer Technologies and Applications*, 10: 100958.
<https://doi.org/10.1016/j.carpta.2025.100958>
- Gou W.C., Zhang X.F., Wang Q., Yang Z., Li J., Meng J., Niu J., Wang Z., and Wang S., 2026, Integrative transcriptomic and metabolomic analysis reveals key genes and regulatory networks underlying seed germination in *Polygonatum sibiricum*, *BMC Genomics*, 27(1): 503.
<https://doi.org/10.1186/s12864-026-12803-x>
- Guimarães Z.T.M., Da Silva D.C., and Ferreira M., 2024, Seedling quality and short-term field performance of three amazonian forest species as affected by site conditions, *iForest-Biogeosciences and Forestry*, 17(2): 80.
<https://doi.org/10.3832/for4317-016>
- Hu Y.Z., Yin M.Z., Bai Y.J., Chu S.S., Zhang L., Yang M., Zheng X.W., Yang Z., Liu J., Li L., Huang L., and Peng H., 2022, An evaluation of traits, nutritional, and medicinal component quality of *Polygonatum cyrtoneura* hua and *P. sibiricum* red, *Frontiers in Plant Science*, 13: 891775.
<https://doi.org/10.3389/fpls.2022.891775>
- Khan Z., Khan B., Shah S.T., Iqbal J., Basit A., Rehman M.U., Ahmad M.A., Fahim M., Saeed M., Székely Á., and Jamal A., 2025, Improved conservation of callus and rhizome microcuttings of *Podophyllum hexandrum* germplasm using the slow growth storage approach, *Scientific Reports*, 15(1): 28173.
<https://doi.org/10.1038/s41598-025-13729-2>
- Lee J.H., Lee S., Cha E., Joo S., Lee J.G., and Nam S.Y., 2026, Plant quality indices: review, development, and conceptual framework, *Horticultural Science and Technology*, 44(3): 319-349.
<https://doi.org/10.7235/hort.20260003>
- Li P.L., Yao H.M., Yue H., Huang J.L., Wang Q., Ding C.B., Liu X., and Yang M., 2025, Preparation, structure, function, and application of dietary polysaccharides from *Polygonatum sibiricum* in the food industry: a review, *Molecules*, 30(5): 1098.
<https://doi.org/10.3390/molecules30051098>
- Liao D.Q., An R.P., Wei J.H., Wang D.M., Li X.E., and Qi J.J., 2021, Transcriptome profiles revealed molecular mechanisms of alternating temperatures in breaking the epicotyl morphophysiological dormancy of *Polygonatum sibiricum* seeds, *BMC Plant Biology*, 21(1): 370.
<https://doi.org/10.1186/s12870-021-03147-7>
- Liao S., Fan Z., Huang X., Huang F., Guo Y., Chen T., Wang P., Chen Z., Yang M., Yang T., Xie J., Si J., and Liu J., 2023, Variations in the morphological and chemical composition of the rhizomes of polygonatum species based on a common garden experiment, *Food Chemistry: X*, 17: 100585.
<https://doi.org/10.1016/j.fochx.2023.100585>
- Liu F., Zhao Y., Wang X., Wang B., Xiao F., and He K., 2023, Physiological response and drought resistance evaluation of *Gleditsia sinensis* Seedlings under Drought-Rehydration State, *Scientific Reports*, 13: 18102.
<https://doi.org/10.1038/s41598-023-45394-8>
- Lubbe F.C., Bitomský M., Bartoš M., Marešová I., Martínková J., and Klimešová J., 2023, Trash or treasure: rhizome conservation during drought, *Functional Ecology*, 37(11): 2300-2311.
<https://doi.org/10.1111/1365-2435.14385>