# YUN SUN LEE, Ph.D.
# CURRICULUM VITAE

**PRESENT ADDRESS**
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## EDUCATION

2007-2014 Ph.D., Department of Plant Science, College of Agriculture and Life Sciences, Seoul National University, South Korea

## POSTDOCTORAL TRAINING

20014-2016 Plant Genomics and Breeding Institute, Seoul National University, South Korea
2017-Present Biochemistry and Molecular biology, Michigan State University, USA

## PEER REVIEWED PUBLICATIONS (Google Scholar *h*-index 11; total citations 704)

1. Koo, H*., Lee, Y.S*., Giang, V.N.L., Koo, H.J., Park, H.-S., Mohanan, P., Song Y. H., Ryu, B., Kang, K.B., Sung, S.H., and Yang, T.J., (2022) Comparative transcriptome and metabolome analyses of four *Panax* species explore the dynamics of metabolite biosynthesis. *J. Ginseng. Res.* *Equal first authorship

2. Lee, Y.S*., Woo, S*., Kim, J.K., Park, J.Y., Izzah, N.K., Park, H.S., Kang, J.H., Lee, T.J., Sung, S.H., Kang, K.B. and Yang, T.J., 2022. Genetic and chemical markers for authentication of three *Artemisia* species: *A. capillaris, A. gmelinii,* and *A. fukudo*. *PloS one*, 17(3), p.e0264576. *Equal first authorship

3. Moore, B.M*., Lee, Y.S*., Wang, P., Azodi, C., Grotewold, E., Shiu, S.H. (2022). Modeling temporal and hormonal regulation of plant transcriptional response to wounding. *The Plant Cell*, 34(2), 867-888. *Equal first authorship

4. Gomez-Cano, F., Chu, Y. H., Cruz-Gomez, M., Abdullah, H. M., Lee, Y. S., Schnell, D. J., Grotewold, E. (2022). Exploring Camelina sativa lipid metabolism regulation by combining gene co-expression and DNA affinity purification analyses. *The Plant Journal*, 110(2), 589-606.

5. Lee, Y.S., Herrera-Tequia, A., Silwal, J., Geiger, J.H., Grotewold, E. (2021) A hydrophobic residue stabilizes dimers of regulatory ACT-like domains in plant basic helix–loop–helix transcription factors. *JBC.* 296

6. Lee, Y.S*., Kim, J*., Woo S*., Park. J.Y., Park, H-S., Shim, H., Choi, H.-I., Kang, J. H., Lee, T. J., Sung S. H., Yang, T.-J., Kang, K. B. (2021) Assessing the genetic and chemical diversity of *Taraxacum* species in the Korean Peninsula. *Phytochemistry*. 181: 112576 *Equal first authorship

7. Jian, N., Gutierrez-Diaz, A., Mukundi, E., Lee, Y.S., Meyers, BC., Otegui, MS., Grotewold, E. (2020) Synergy between the anthocyanin and RDR6/SGS3/DCL4 siRNA pathways expose hidden features of Arabidopsis carbon metabolism. *Nat. Commun*. 11: 2456.

8. Jian, N., Lee, Y.S., Mukundi, E., Gomez-Cano, F., Rivero, L., and Grotewold, E. (2019) Diversity of genetic lesions characterizes new *Arabidopsis* flavonoid pigment mutant alleles from T-DNA collections. *Plant Sci*, 291:110335

9. Kang, K.B*., Jayakodi, M*., Lee, Y.S.*, Nguyen, V.B., Park, H.S., Koo, H.J., Choi, I.K., Kim, D.H., Chung, Y.J., Ryu, B., Lee, D.Y., Sung S.H., Yang T.J. (2018). Identification of candidate UDP-glycos yltransferases involved in protopanaxadiol-type ginsenoside biosynthesis in *Panax ginseng*. *Sci. Rep*. 8:11744 *Equal first authorship

10. Kim, N.H., Jayakodi, M, Lee, S.C., Choi, B.S, Jang, W, Lee, J, Kim, H.H., Waminal, N.E., Lakshmanan, M, van Nguyen, B, Lee, Y.S., Park, H.S., Koo, H.J., Park, J.Y., Perumal, S., Joh, H.J., Lee, H, Kim, J, Kim, I.S., Kim, K, Koduru, L, Kang, K.B., Sung, S.H., Yu, Y, Park, D.S., Choi, D, Seo, E, Kim, S, Kim, Y.C., Hyun, D.Y., Park, Y.I., Kim, C, Lee, T.H., Kim, H.U., Soh, M.S., Lee, Y., In, J.G., Kim, H.S., Kim, Y.M., Yang, D.C., Wing, RA, Lee, D.Y., Paterson, AH, Yang, T.J. 2018. Genome and evolution of the shade-requiring medicinal herb *Panax ginseng*. *Plant Biotechnol. J*, 16: 1904-1917

11. Kim, I., Park, J.Y., Lee, Y.S, Lee, H.O., Park, H.S., Jayakodi, M., Nomar, E., Kang, J.H., Lee, T.J., Sung, S.H., Kim, K.Y., Yang, T.J. 2017. Discrimination and Authentication of *Eclipta prostrata* and *E. alba* Based on the Complete Chloroplast Genomes. *Plant Breed Biotechnol.* 5: 334-343, (Korean Journal)

12. Lee, Y.S*., Park, H.S*., Lee, DK., Jayakodi, M., Kim, N.H., Koo, H.J., Lee, S.C., Kim, Y.J., Kwon, S.W., Yang, T.J. 2017. Integrated transcriptomic and metabolomic analysis of five *Panax ginseng* cultivars reveals the dynamics of ginsenoside biosynthesis. *Front. Plant. Sci.* 8:1048 *Equal first authorship

13. Park, J.Y., Lee, Y.S., Kim,J.K., Lee, H.O., Park, H.S., Lee, S.C., Kang J.H., Lee T.J., Sung S.H., Yang, T.J. The complete chloroplast genome of *Eclipta prostrata* L. (Asteraceae). *Mitochontrial DNA B.* 1: 414-415

14. Kim,J.K., Park, J.Y., Lee, Y.S., Lee, H.O., Park, H.S., Lee, S.-C., Kang J.H., Lee T.J., Sung S.H., Yang, T.J. 2016. The complete chloroplast genomes of two *Taraxacum* species, *T. platycarpum* Dahlst. and *T. mongolicum* Hand.-Mazz. (Asteraceae). *Mitochontrial DNA B.* 1: 412-412

15. Kim,J.K., Park, J.Y., Lee, Y.S., Lee, H.O., Park, H.S., Lee, S.C., Kang J.H., Lee T.J., Sung S.H., Yang, T.-J. 2016. The complete chloroplast genome sequence of the *Taraxacum officinale* F.H.Wigg (Asteraceae). *Mitochontrial DNA B.* 1: 228-229.

16. Lee, Y.S., Kim,I., Kim, J.K., Park, J. Y., Joh, H.J., Park, H.S., Lee, H.O., Lee, S.C.,Hur, Y.J., Yang, T.J. 2016. The complete chloroplast genome sequence of *Rhus chinensis* Mill (Anacardiaceae). *Mitochontrial DNA B.* 1: 696-697

17. Lee, Y.S., Park, J. Y., Kim, J.K., Lee, H.O., Park, H.S., Lee, S.C., Kang, J.H., Lee, T.J., Sung, S.H., Yang, T.J. 2016. The complete chloroplast genome sequences of *Artemisia gmelinii* and *Artemisia capillaris (*Asteraceae). *Mitochontrial DNA B.* 1: 410-411

18. Lee, Y.S., Park, J. Y., Kim, J.K., Lee, H.O., Park, H.S., Lee, S.C., Kang, J.H., Lee, T.J., Sung, S.H., Yang, T.J. 2016. The complete chloroplast genome sequence of *Artemisia fukudo* Makino (Asteraceae). *Mitochontrial DNA B.* 1: 376-377

19. Lee, Y.S*., Park, H.S*., Lee, D-K., Jayakodi, M., Kim, N.H., Lee, S.C., Kundu, A., Kwon, S.W., Yang, T.J. 2016. Comparative analysis of the transcriptomes and primary metabolite profiles of *in vitro* cultured adventitious roots of five *P. ginseng* cultivars. *J. Ginseng. Res*. 41: 60-68 *Equal first authorship

20. Lee, Y.S., Park, H.M., Kim, N.H., Waminal, N.E., Kim, Y.J., Lim, K.B., Baek, J.H., Kim, H.H. and Yang, T.J. 2016. Phylogenetic relationship of 40 species of genus *Aloe* L. and the origin of an allodiploid species revealed by nucleotide sequence variation in chloroplast intergenic space and cytogenetic *in situ* hybridization. *Genet. Resour. Crop. Ev.* 63: 235-242.

21. Jayakodi, M., Lee, S.C., Lee,Y.S., Park, H.S., Kim, N.H., Jang, W., Lee, H.O., Joh, H.J, Yang, T.J. 2015. Comprehensive analysis of *Panax ginseng* root transcriptomes. *BMC Plant Biol*. 15:138

22. Senthil, K., Jayakodi, M., Thirugnanasambantham, P., Lee, S.C., Duraisamy, P., Purushotham, P.M., Rajasekaran, K., Charles, S.N., Roy, I.M., Nagappan, A.K., Kim, G.S., Lee, Y.S., Natesan, S, Min, T.S, Yang, T.J. 2015. Transcriptome analysis reveals *in vitro* cultured *Withania somnifera* leaf and root tissues as a promising source for targeted withanolide biosynthesis. *BMC Genom.* 16:14.

23. Jayakodi, M., Lee, S.C., Park, H.S., Jang, W., Lee, Y.S., Choi, B.S., Nah, G.J., Kim, D.S., Natesan, S., Sun, C., Yang, T.J. 2014. Transcriptome profiling and comparative analysis of *Panax ginseng* adventitious roots. *J. Ginseng. Res.* 38:278-288.

24. Um, J.A., Choi, Y.G., Lee, D.K., Lee, Y.S., Lim, C.J., Youn, Y.A., Lee, H.D., Cho, H.J., Park, J.H. and Seo, Y.B. 2013. Discrimination between genetically identical peony roots from different regions of origin based on 1H-nuclear magnetic resonance spectroscopy-based metabolomics: determination of the geographical origins and estimation of the mixing proportions of blended samples. *Anal. Bioanal. Chem*. 405: 7523–7534.

25. Lee, Y.S., Park, H.M., Park, S.U., Baek, J.H. and Yang, T.J. 2013b. Exogenous polyamine promotes in vitro propaation of *Aloe vera*. *J.Crop. Sci. Biotech.* 16: 285–290. (Korean Journal)

26. Lee, Y.S., Ju, H.K., Kim, Y.J., Lim, T.G., Uddin, M.R., Kim, Y.B., Baek, J.H., Kwon, S.W., Lee, K.W., Seo, H.S., Park, S.U., and Yang, T.J. 2013a. Enhancement of anti-inflammatory activity of *Aloe vera* adventitious root extracts through the alteration of primary and secondary metabolites via salicylic acid elicitation. *PLoS One* 8: e82479.

27. Lee, Y.S., Yang, T.J., Park, S.U., Baek, J.H., Wu, S. and Lim, K.B. 2011. Induction and proliferation of adventitious roots from *Aloe vera* leaf tissues for *in vitro* production of aloe-emodin. *Plant Omics* 4 : 190.

**PATENTS AND INVENTIONS**

1. Method for producing aloe adventitious root with increased anthraquinone compound content and aloe adventitious root produced by the same method. Yang, T.J., Lee, Y.S., Baek, J.H. and Cha, J.M. 2013. Korea patent Application No. : 10–2013–0127679.

**2.** Method for producing aloe adventitious root with increased medical active material. Yang, T.J., Lee, Y.S., Park, S.U., Cha, J.M., Baek, J.H. and Kim, S.W. 2015. Korea patent Application No. : 10–1576787.

**SCIENTIFIC ACTIVITIES**

*Teaching experience*

2015 Instructor of "Tissue culture techniques" at Sahmyook University in Korea,
2014 Instructor of "Life sciences experiments" at Sahmyook University in Korea,