

Efrén Germán Santos Ordóñez



Principal Tenure Professor

Websites (Google scholar):

https://scholar.google.com/citations?hl=es&user=gsItsPsAAAAJ&view_op=list_works&sortby=pubdate

EDUCATION

Ph.D. Bioengineering, 2008, Katholieke University of Leuven, Leuven, Belgium

Agricultural Engineer, 2001, ESPOL University, Guayaquil, Ecuador

SERVICE ON THIS FACULTY (7 years)

2016-present, Principal Tenure Professor

OTHER RELATED EXPERIENCE

05/2008 – 2016, Tenure Professor, Faculty of Mechanical Engineering and Production Science, ESPOL University, Guayaquil, Ecuador

CONSULTING AND PATENTS (n/a)

STATE IN WHICH REGISTERED (n/a)

PUBLICATIONS LAST FIVE YEARS (23)

1. **Santos, E.,** Sánchez, E. and Villao, L. (2023). Establishing a genome editing platform of banana in Ecuador: challenges and regulation. *Acta Hort.* 1362, 43-48
DOI: 10.17660/ActaHortic.2023.1362.7 <https://doi.org/10.17660/ActaHortic.2023.1362.7>
2. Chavez-Navarrete, Tatiana, Luis Sanchez-Timm, Ricardo Pacheco-Coello, Niranjana Baisakh, and **Efrén Santos-Ordóñez**. 2023. "Identification of Differential-Expressed Genes in Banana-Biostimulant Interaction Using Suppression Subtractive Hybridization" *Agronomy* 13, no. 2: 415.
<https://doi.org/10.3390/agronomy13020415>
3. **Santos, E.,** Sánchez, E., Villao, L., Chávez, T. (2023). Cisgenic Crops in Ecuador: Research and Perspectives. In: Chaurasia, A., Kole, C. (eds) *Cisgenic Crops: Safety, Legal and Social Issues*. Concepts and Strategies in Plant Sciences. Springer, Cham. https://doi.org/10.1007/978-3-031-10721-4_10
4. López-Barrera, A.; **Santos-Ordóñez, E.**; Pacheco-Coello, R.; Villao-Uzho, L.; Miranda, M.; Gutiérrez, Y.; Chóez-Guaranda, I.; Ruiz-Reyes, S.G. (2023). ITS1 Barcode and Phytochemical Analysis by Gas Chromatography–Mass Spectrometry of *Corynaea crassa* Hook. f (Balanophoraceae) from Ecuador and Peru. *Genes*, 14, 88. <https://doi.org/10.3390/genes14010088>
5. **Santos, E.,** Pacheco, R., Villao, L. (2022). Application of DNA barcodes to medicinal plants. In: Chong, P., Miranda, M., Manzano, P. (eds) *Medicinal Plants of Ecuador*. CRC Press. DOI: 10.1201/9781003173991-3
6. Peñarreta, J., Manzano, P., **Santos, E.** (2022). *Cinchona pubescens* (Cascarilla), endemic species from the Andean Forest of South America. In: Chong, P., Miranda, M., Manzano, P. (eds) *Medicinal Plants of Ecuador*. CRC Press. DOI: 10.1201/9781003173991-16
7. Álvarez-Montero, X., Mercado-Reyes, I., Valdez-Solórzano, D., Santos Ordóñez E., Delgado-Plaza, E., Peralta-Jaramillo, J. (2022) Effect of temperature and the Carbon-Nitrogen (C/N) ratio on methane production through anaerobic co-digestion of cattle manure and *Jatropha* seed cake. *Renewable Energy and Power Quality Journal*, 20, 364 – 368
8. Garcés-Fiallos, F. R., Alberto Salto, L., Corozo-Quinonez, L., Pacheco-Coello, R., **Santos-Ordóñez, E.,** Urresta, L. F., ... Raju, M. N. (2022). Capsicum hypocotyls mycobiome diversity is unaffected by *Phytophthora capsici* inoculation. *Physiological and Molecular Plant Pathology*, 101801.
<https://doi.org/https://doi.org/10.1016/j.pmpp.2022.101801>

9. Cabrera Gavilanes, D. M., **Santos Ordóñez, E.**, & Parra Ríofrío, G. (2021) Aislamiento y caracterización molecular de cepas fitoplanctónicas obtenidas en Engabao, Guayas-Ecuador. *Revista Científica Ciencias Naturales Y Ambientales*, 15(2). <https://doi.org/10.53591/cna.v15i2.1396>
10. Soledispa P, Santos-Ordóñez E, Miranda M, Pacheco R, Gutiérrez Gaiten YI, Scull R. 2021. Molecular barcode and morphological analysis of Smilax purhampuy Ruiz, Ecuador. PeerJ 9:e11028 <https://doi.org/10.7717/peerj.11028>
11. Salto, L.A., Corozo-Quiñones, L., Pacheco-Coello, R., **Santos-Ordóñez, E.**, Monteros-Altamirano, A., Garcés-Fiallos F. (2021) Tissue specific colonization of *Phytophthora capsici* in *Capsicum* spp.: molecular insights over plant-pathogen interaction. *Phytoparasitica* 49, 113–122
12. Villao L., Flores J., **Santos-Ordóñez E.** (2021). Genetic transformation of apical meristematic shoots in the banana cultivar ‘Williams’. *Revista Bionatura* 6(1), 1462–1465
13. Torres M., **Santos-Ordóñez E.** (2020) Ecuador—Modern Biotechnology in Ecuador—Development and Legal Framework. In: Chaurasia A., Hawksworth D.L., Pessoa de Miranda M. (eds) *GMOs. Topics in Biodiversity and Conservation*, vol 19. Springer, Cham. https://doi.org/10.1007/978-3-030-53183-6_29
14. **Santos, E.**, Sánchez, E., Pacheco, R., Chávez, T., Villao, L., Galarza, L. and Flores, J. (2020). Transcriptomics studies of banana for candidate gene identification in a genetic improvement program framework in Ecuador. *Acta Hort.* 1297, 551-556
DOI: 10.17660/ActaHortic.2020.1297.72
15. López J., **Santos-Ordóñez E.**, González L. (2020) Complementation of Bananas Conventional Breeding Programs Through Biotechnological Genetic Improvement. In: Chong P., Newman D., Steinmacher D. (eds) *Agricultural, Forestry and Bioindustry Biotechnology and Biodiscovery*. Springer, Cham. https://doi.org/10.1007/978-3-030-51358-0_3
16. Chong P.A., **Santos-Ordóñez E.** (2020) New Biotechnology Promising Approaches for Disease Control on Bananas and Plantains. In: Chong P., Newman D., Steinmacher D. (eds) *Agricultural, Forestry and Bioindustry Biotechnology and Biodiscovery*. Springer, Cham. https://doi.org/10.1007/978-3-030-51358-0_2
17. Sarmiento-Tomalá G, **Santos-Ordóñez E**, Miranda-Martínez M, Pacheco-Coello R, Scull-Lizama R, Gutiérrez-Gaitén Y, Delgado-Hernández R. (2020). Short Communication: Molecular barcode and morphology analysis of *Malva pseudolavatera* Webb & Berthel and *Malva sylvestris* L from Ecuador. *Biodiversitas* 21(8): 3554-3561
18. GÓMEZ, R., GARCÍA, J., MENDOZA, J., PIÑA, F., SANTOS-ORDÓÑEZ, E., ARMAS, M., & FLORES, J. (2020). ESTABLISHMENT OF A PAPAYA (*Carica papaya* L.) MICROPROPAGATION PROTOCOL IN A TEMPORARY TWIN VESSEL IMMERSION SYSTEM. *PLANT CELL BIOTECHNOLOGY AND MOLECULAR BIOLOGY*, 21(13-14), 1-6
19. Chávez-Navarrete, T. P., Sánchez-Timm, E., and **Santos-Ordóñez, E.** (2019). Dataset of suppression subtractive hybridization libraries of banana-biostimulant-*Pseudocercospora fijiensis* molecular interaction. *Data in brief*, 27, 104557. <https://doi.org/10.1016/j.dib.2019.104557>
20. Bustamante K, **Santos-Ordóñez E**, Miranda M, Pacheco R, Gutiérrez Y, Scull R. (2019) Morphological and molecular barcode analysis of the medicinal tree *Mimusops coriacea* (A. DC.) Miq. collected in Ecuador. PeerJ, DOI 10.7717/peerj.7789
21. Villao L., Sánchez E., Romero C., Galarza L., Flores J., **Santos E.** (2019) *Activity characterization of the plantain promoter from the heavy metal-associated isoprenylated plant gene (MabHIPP) using the luciferase reporter gene*. *Plant Gene* 19, 100187
22. Ortega-Puma C., Fajardo-Carmona S., Ortiz-Ulloa J., Tobar V., Quito-Ávila D., **Santos-Ordóñez E.**, Jerves-Andrade L., Cuzco N., Wilches I., León-Tamariz F. (2019) Evaluation of the variables altitude, soil composition and development of a predictive model of the antibacterial activity for the genus *Hypericum* by chromatographic fingerprint. *Phytochemistry Letters* 31: 104-113
23. García Onofre J., Montes Carballal A., Santos Ordóñez E., Flores Cedeño J. (2018) Aplicación de la electroterapia para la eliminación del virus del mosaico del pepino (CMV) en plantas micropropagadas de banano (*Musa* spp.). *Bionatura* 2018.03.02.7

PROFESSIONAL SOCIETIES (n/a)

HONORS AND AWARDS (n/a)

INSTITUTIONAL AND PROFESSIONAL SERVICE (LAST FIVE YEARS)

Coordinator of Doctoral Bioscience Program, ESPOL University

TIME DISTRIBUTION

50% Undergraduate courses. 50% Research.