

CURRICULUM VITAE

NAME

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EDUCATION

- 1995 Ph D, Auburn University
1992 MS, Stephen F. Austin State University
1988 BS, Stephen F. Austin State University

ACADEMIC POSITIONS

January 1, 2016 - Present Professor, Colorado State University, Fort Collins, CO, United States.

2018-2019 (College of Agricultural Sciences)

PUBLISHED WORKS

Books

Dayan, F. E. (2005). *Somatic Mutation-Mediated Evolution of Herbicide Resistance in the Non-Indigenous Invasive Plant Hydrilla (Hydrilla Verticillata)* (vol. 1): BCPC Publications, Hampshire, United Kingdom., Peer Reviewed/Refereed

Reddy, K., Dayan, F. E., Duke, S. (1998). *QSAR analysis of protoporphyrinogen oxidase inhibitors* (pp. 197-233): Taylor and Francis., Peer Reviewed/Refereed

Refereed Journal Articles

Dayan, F. E., Barker, A. L., Dayan, L., Ravet, K. (2019). The role of antioxidants in the protection of plants against inhibitors of protoporphyrinogen oxidase. *Reactive Oxygen Species*, 7., Peer Reviewed/Refereed

Kagueyama Takano, H., Mendes, R., Scoz, L., Lopez Ovejero, R., Constantin, J., Gaines, T. A., Westra, P., Dayan, F. E., Oliveira, R. (in press). Proline 106 EPSPS mutation imparting glyphosate resistance in goosegrass (*Eleusine indica*) emerges in South America. *Weed Science.*, Peer Reviewed/Refereed

Oliveira, M. C., Gaines, T. A., Dayan, F. E., Patterson, E., Jhala, A. J., Knezevic, S. Z. (2018). Reversing resistance to tembotrione in an *Amaranthus tuberculatus* (var. *rudis*) population from Nebraska, USA with cytochrome P450 inhibitors. *Pest Management Science*, 74, 2296-2305., Peer Reviewed/Refereed

Keshtkar, E., Abdolshahi, R., Sasanfar, H., Zand, E., Beffa, R., Dayan, F. E., Kudsk, P. (2018). Assessing fitness

costs from a herbicide-resistance management perspective: A review and insight. *Weed Science.*, Peer Reviewed/Refereed

Duke, S., Stidham, M., Dayan, F. E. (2018). A novel genomic approach to herbicide and herbicide mode of action discovery. *Pest Management Science.*, Peer Reviewed/Refereed

Pan, Z., Baerson, S., Wang, M., Bajsa-Hirschel, J., Rimando, A., Wang, X., Nanayakkara, D., Noonan, B., Fromm, M., Dayan, F. E., Khan, I., Duke, S. (2018). A cytochrome P450 CYP71 enzyme expressed in *Sorghum bicolor* root hair cells participates in the biosynthesis of the benzoquinone allelochemical sorgoleone. *New Phytologist*, 218, 616-629., Peer Reviewed/Refereed

Romdhane, S., Devers-Lamrani, M., Beguet, J., Bertrand, C., Calvayrac, C., Salvia, M., Ben Jrad, A., Dayan, F. E., Spor, A., Barthelmebs, L., Martin-Laurent, F. (2018). Assessment of the ecotoxicological impact of natural and synthetic β -triketone herbicides on the diversity and activity of the soil bacterial community using omic approaches. *Science of the Total Environment*, 651, 241-249., Peer Reviewed/Refereed

Dayan, F. E., Barker, A. L., Tranel, P. J. (2017). Origins and Structure of Chloroplastic and Mitochondrial Plant Protoporphyrinogen Oxidases: Implications for Evolution of Herbicide Resistance. *Pest Management Science.*, Peer Reviewed/Refereed

Romdhane, S., Devers-Lamrani, M., Martin-Laurent, F., Jrad, A. B., Raviglione, D., Salvia, M.-V., Besse-Hoggan, P., Dayan, F. E., Bertrand, C., Barthelmebs, L. (2017). Evidence for photolytic and microbial degradation processes in the dissipation of leptospermone, a natural β -triketone herbicide. *Environmental Science and Pollution Research.*, Peer Reviewed/Refereed

Głab, L., Sowiński, J., Bough, R. A., Dayan, F. E. (2017). Allelopathic potential of sorghum (*Sorghum bicolor* (L.) Moench) in weed control: A comprehensive review. *Advances in Agronomy*, 145, 43-95., Peer Reviewed/Refereed

Chen, X., Berim, A., Dayan, F. E., Gang, D. (2017). A (-)-kolavenyl diphosphate synthase catalyzes the first step of salvinorin A biosynthesis in *Salvia divinorum*. *Journal of Experimental Botany*, 68, 1109-1122., Peer Reviewed/Refereed

Romdhane, S., Devers-Lamrani, M., Barthelmebs, L., Calvayrac, C., Bertrand, C., Cooper, J.-F., Dayan, F. E., Martin-Laurent, F. (2016). Ecotoxicological impact of the bioherbicide leptospermone on the microbial community of two arable soils. *Frontiers in Microbiology*, 7, 775. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4877392/>, Peer Reviewed/Refereed

Patil, C., Calvayrac, C., Zhou, Y., Romdhane, S., Salvia, M.-V., Cooper, J.-F., Dayan, F. E., Bertrand, C. (2016). Environmental metabolic footprinting: A novel application to study the impact of a natural and a synthetic β -triketone herbicide in soil. *Science of The Total Environment*, 566-567, 552-558. <http://www.sciencedirect.com/science/article/pii/S0048969716310014>, Peer Reviewed/Refereed

Corrêa, E. A., Dayan, F. E., Owens, D. K., Rimando, A. M., Duke, S. O. (2016). Glyphosate-resistant and conventional canola (*Brassica napus* L.) responses to glyphosate and aminomethylphosphonic acid (AMPA) treatment. *Journal of Agricultural and Food Chemistry*, 64(18), 3508-3513. <http://dx.doi.org/10.1021/acs.jafc.6b00446>, Peer Reviewed/Refereed

Silva, F. M. L., Duke, S. O., Dayan, F. E., Velini, E. D. (2016). Low doses of glyphosate change the responses of soybean to subsequent glyphosate treatments. *Weed Research*, 56, 124-136. <http://dx.doi.org/10.1111/wre.12189>, Peer Reviewed/Refereed

Killeen, D. P., Larsen, L., Dayan, F. E., Gordon, K. C., Perry, N. B., van Klink, J. W. (2016). Nortriketones:

- Antimicrobial trimethylated acylphloroglucinols from mānuka (*Leptospermum scoparium*). *Journal of Natural Products*, 79, 564-569. <http://dx.doi.org/10.1021/acs.jnatprod.5b00968>, Peer Reviewed/Refereed
- Carbonari, C. A., Latorre, D. O., Gomes, Giovanna L. G. C., Velini, E. D., Owens, D. K., Pan, Z., Dayan, F. E. (2016). Resistance to glufosinate is proportional to phosphinothricin acetyltransferase expression and activity in LibertyLink® and WideStrike® cotton. *Planta*, 243, 925-933. <http://dx.doi.org/10.1007/s00425-015-2457-3>, Peer Reviewed/Refereed
- Travaini, M. L., Sosa, G. M., Ceccarelli, E. A., Walter, H., Cantrell, C. L., Carrillo, N. J., Dayan, F. E., Meepagala, K. M., Duke, S. O. (2016). Khellin and Visnagin, Furanochromones from *Ammi visnaga* (L.) Lam., as Potential Bioherbicides. *Journal of Agricultural and Food Chemistry*, 64, 9475–9487., Peer Reviewed/Refereed
- Dayan, F. E., Owens, D. K., Corniani, N., Silva, F. M. L., Watson, S. B., Howell, J., Shaner, D. L. (2015). Biochemical markers and enzyme assays for herbicide mode of action and resistance studies. *Weed Science*, 63(sp1), 23-63. <http://dx.doi.org/10.1614/WS-D-13-00063.1>, Peer Reviewed/Refereed
- Duke, S., Dayan, F. E. (2015). Discovery of new herbicide modes of action with natural phytotoxins. *American Chemical Society Symposium Series*, 1204, 79-92., Peer Reviewed/Refereed
- Salas, R. A., Scott, R. C., Dayan, F. E., Burgos, N. R. (2015). EPSPS gene amplification in glyphosate-resistant Italian ryegrass (*Lolium perenne* ssp. *multiflorum*) populations from Arkansas (United States). *Journal of Agricultural and Food Chemistry*, 63(25), 5885-5893. <http://dx.doi.org/10.1021/acs.jafc.5b00018>, Peer Reviewed/Refereed
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- Dayan, F. E., Owens, D. K., Watson, S. B., Asolkar, R. N., Boddy, L. G. (2015). Sarmentine, a natural herbicide from Piper species with multiple herbicide mechanisms of action. *Frontiers in Plant Science*, 6, doi: 10.3389/fpls.2015.00222. http://www.frontiersin.org/Journal/Abstract.aspx?s=1208&name=plant_metabolism_and_chemodiversity&ART_DOI=10.3389/fpls.2015.00222!!!, Peer Reviewed/Refereed
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- Uddin, M. R., Park, S. U., Dayan, F. E., Pyon, J. Y. (2014). Herbicidal activity of formulated sorgoleone, a

- natural product of sorghum root exudate. *Pest management science*, 70(2), 252-257., Peer Reviewed/Refereed
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- Dayan, F. E., Duke, S. O. (2014). Natural compounds as next-generation herbicides. *Plant physiology*, 166(3), 1090-1105., Peer Reviewed/Refereed
- Rocaboy-Faquet, E., Noguier, T., Romdhane, S., Bertrand, C., Dayan, F. E., Barthelmebs, L. (2014). Novel bacterial bioassay for a high-throughput screening of 4-hydroxyphenylpyruvate dioxygenase inhibitors. *Applied microbiology and biotechnology*, 98(16), 7243-7252., Peer Reviewed/Refereed
- Corniani, N., Velini, E. D., Silva, F. M. L., Nanayakkara, N. P. Dhammika, Witschel, M. C., Dayan, F. E. (2014). Novel bioassay for the discovery of inhibitors of the 2-C-methyl-D-erythritol 4-phosphate (MEP) and terpenoid pathways leading to carotenoid biosynthesis. *PLoS ONE*, 9(7), e103704., Peer Reviewed/Refereed
- Silva, F. M. L., Donega, M. A., Cerdeira, A. L., Corniani, N., Velini, E. D., Cantrell, C. L., Dayan, F. E., Coelho, M. N., Shea, K., Duke, S. O. (2014). Roots of the invasive species *Carduus nutans* L. and *C. acanthoides* L. produce large amounts of aplotaxene, a possible allelochemical. *Journal of Chemical Ecology*, 40, 276-284., Peer Reviewed/Refereed
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- Rimando, A. M., Pan, Z., Polashock, J. J., Dayan, F. E., Mizuno, C. S., Snook, M. E., Liu, C., Baerson, S. R. (2012). In planta production of the highly potent resveratrol analogue pterostilbene via stilbene synthase and

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- Cantrell, C. L., Dayan, F. E., Duke, S. O. (2012). Natural products as sources for new pesticides. *Journal of Natural Products*, 75, 1231-1242., Peer Reviewed/Refereed
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- Dayan, F. E., Owens, D. K., Duke, S. O. (2012). Rationale for a natural products approach to herbicide discovery. *Pest Management Science*, 68, 519-528., Peer Reviewed/Refereed
- Wang, R. L., Staehelin, C., Dayan, F. E., Song, Y. Y., Su, Y. J., Zeng, R. S. (2012). Simulated acid rain accelerates litter decomposition and enhances the allelopathic potential of the invasive plant *Wedelia trilobata* (creeping daisy). *Weed Science*, 60, 462-467., Peer Reviewed/Refereed
- Cerdeira, A. L., Cantrell, C. L., Dayan, F. E., Byrd, J. D., Duke, S. O. (2012). Tabanone, a new phytotoxic constituent of cogongrass (*Imperata cylindrica*). *Weed Science*, 60, 212-218., Peer Reviewed/Refereed
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- Saadoun, I. S., Bataineh, S., Ababneh, Q., Hameed, K., Schrader, K. K., Cantrell, C. L., Dayan, F. E., Wedge, D. E. (2011). Evaluation of the toxicity of *Streptomyces aburaviensis* (R9) extract towards various agricultural pests. *Agricultural Sciences*, 2, 491-497., Peer Reviewed/Refereed
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- Duke, S. O., Rimando, A. M., Dayan, F. E., Canel, C., Wedge, D. E., Tellez, M. R., Schrader, K. K., Weston, L. A., Smillie, T. J., Paul, R. (2000). *Strategies for the discovery of bioactive phytochemicals* (pp. 1-20).: Phytochemicals as Bioactive Agents., Peer Reviewed/Refereed
- Dayan, F. E., Reddy, K. N., Duke, S. O. (1999). Structure-activity relationships of diphenyl ethers and other oxygen-bridged protoporphyrinogen oxidase inhibitors. *Peroxidizing Herbicides* (pp. 141-161).: Springer Berlin Heidelberg., Peer Reviewed/Refereed
- Duke, S., Dayan, F. E., Rimando, A. (1998). In Hall, JA (Ed.), *Natural products as tools for weed management* (pp. 1-11).: Recent topics of weed science and weed technology., Peer Reviewed/Refereed
- Dayan, F. E., Duke, S. (1997). *Phytotoxicity of protoporphyrinogen oxidase inhibitors: phenomenology, mode of action and mechanisms of resistance* (vol. 1, pp. 11-36).: Reviews in Toxicology., Peer Reviewed/Refereed

Refereed Proceedings or Transactions

- Duke, S. O., Dayan, F. E. (2010). *Introduction to the Symposium on Nonherbicide Use of Herbicides* (3rd ed., vol. 58, pp. 323-323).: Weed Science., Peer Reviewed/Refereed
- Dayan, F. E., Cook, D., Baerson, SR, Rimando, A. (2005). *Manipulating the lipid resorcinol pathway to enhance allelopathy in rice* (pp. 175-181).: Allelopathy International Congress. In: JDI Harper, M. An, H. Wu & JH Kent (eds.), *Proceedings of the Fourth World Congress on Allelopathy!!!*., Peer Reviewed/Refereed
- Cook, D. C., Baerson, SR, Rimando, A., Dayan, F. E., Duke, S. (2004). *Prospects for engineering Vaccinium germplasm for the production of a high-potency resveratrol analogue* (vol. 40, pp. 23A-23A).: SPRINGER 233 SPRING ST, NEW YORK, NY 10013 USA., Peer Reviewed/Refereed
- Duke, S., Dayan, F. E. (1997). Natural products as leads for new herbicide modes of action. *Brighton Conference Symposium Proceedings*.: Brighton Conference Symposium Proceedings., Peer Reviewed/Refereed

Non-Refereed Journal Articles

- Duke, S., Scheffler, B., Dayan, F., Dyer, W. (2002). Genetic engineering crops for improved weed management traits. *Crop biotechnology*, 829, 52-66., Not Peer Reviewed/Refereed
- Dayan, F. E., CANEL, C. (2002). National Center for Natural Products Research, The Research Institute of Pharmaceutical Sciences, School of Pharmacy, University of Mississippi, University, MS 38677, USA. *Bioactive Natural Products (Part G)*, 26, 149., Not Peer Reviewed/Refereed

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- Gimsing, A. L., Dayan, F. E., Locke, M., Bælum, J., Sejerø, L., Jacobsen, C. S. (2011). Mineralization of Sorgoleone, a Phytotoxic Compound Produced by Sorghum, in Soil. *5 th SETAC World Congress, Program Book: Protecting Our Global Environment*.: 6th World Congress/SETAC Europe 22nd Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC)., Not Peer Reviewed/Refereed
- Gimsing, A. L., Dayan, F. E., Bælum, J., Jacobsen, C. S. (2011). Mineralization of Sorgoleone, an Allelochemical Produced by Sorghum, in Soil. *5 th World Congress on Allelopathy: Growing Awareness of the Role of Allelopathy in Ecological, Agricultural, and Environmental Processes*.: Proceedings of 5 th World Congress

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Duke, S. O., Dayan, F. E., Cantrell, C. L., Rimando, A. M., Wedge, D. E., Pan, Z., Baerson, S. R., Meepagala, K. M. (2011). *Phytochemicals and genes for their synthesis in pest management* (vol. 50, pp. 620-620): INFORMA HEALTHCARE TELEPHONE HOUSE, 69-77 PAUL STREET, LONDON EC2A 4LQ, ENGLAND., Not Peer Reviewed/Refereed

Dayan, F. E., Cantrell, C., Duke, S., van Klink, J., Perry, N. (2009). p-Hydroxyphenylpyruvate dioxygenase, a herbicide target site for natural β -triketones. *ENDURE International Conference* (pp. 1-4): proceedings of ENDURE International Conference., Not Peer Reviewed/Refereed

Kutrzeba, L., Zjawiony, J., Dayan, F. E. (2008). *Salvinorin B as a putative niosynthetic precursor of salvinorin A. Study on O-acetyltransferase in glandular trichomes isolated from Salvia divinorium* (03rd ed., vol. 74, pp. P-30): Proceedings of the American Society of Pharmacognosy., Not Peer Reviewed/Refereed

Kutrzeba, L., Zjawiony, J., Dayan, F. E. (2007). Salvinorin B as a putative biosynthetic precursor of Salvinorin A. study on O-acetyltransferase in glandular trichomes isolated from Salvia divinorium. *PLANTA MEDICA* (vol. 74, pp. 332-332): GEORG THIEME VERLAG KG RUDIGERSTR 14, D-70469 STUTTGART, GERMANY., Not Peer Reviewed/Refereed

Kutrzeba, L., Dayan, F. E., Giner, J., Zjawiony, J. (2006). C-13-and H-2-labeled deoxyxylulose as a tool in study of kinetics and mechanism of salvinorin A biosynthesis. *PLANTA MEDICA* (vol. 74, pp. 331-332): GEORG THIEME VERLAG KG RUDIGERSTR 14, D-70469 STUTTGART, GERMANY., Not Peer Reviewed/Refereed

Dayan, F. E., Weete, J. (1995). Mechanism of tolerance to a novel phenyl triazolinone herbicide. *Plant Physiology* (vol. 111, pp. 498-498): AMER SOC PLANT PHYSIOLOGISTS 15501 MONONA DRIVE, ROCKVILLE, MD 20855., Not Peer Reviewed/Refereed

Article in Popular or Trade Magazine

Dayan, F. E. (2018). *Is there a natural route to the next generation of herbicides?* (2nd ed., vol. 29, pp. 54-57): Outlooks in Pest Management., Peer Reviewed/Refereed

Book

Dayan, F. E. (1995). *Physiological and biochemical basis for tolerance to sulfentrazone by soybean and selected weed species*: Dissertation., Not Peer Reviewed/Refereed

Tenure and Promotion Evidence of Teaching Effectiveness (Tenure and Promotion Input)

Development of New Courses

Developed a new graduate level course entitled Plant Biochemistry in Agriculture - BSPM 581A2

Development of New Teaching Techniques

Incorporate computer protein modeling to the lecture, incorporate virtual reality, incorporate use of videos and multimedia

Integration of Service Learning

Conference/Workshop Assessments

Participation in Professional Development Activities Related to Teaching

Attended the Teaching Workshop at 2017 WSSA meeting

Professional Consultation Related to Teaching

Other Evidence

COMMITTEES

Academic affairs committee for CAS, (November 1, 2016 - Present).

Development of Undergraduate Major Committee, (August 2017 - Present).

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Phytochemical Society of North America. (January 2006 - Present).

Internatinonal Allelopathy Society. (June 2000 - Present).

International Weed Science Society. (January 1999 - Present).

Weed Science Society of America. (February 1995 - Present).

Top Crop Manager.

Editor, Journal Editor, Outlooks on Pest Management. (January 1, 2017 - Present).

Committee Chair, Outstanding Early Career Award committee. (2016 - Present).

Committee Member, WSSA E12 Herbicide Resistant Plants Committee. (February 2015 - Present).

Editor, Associate Editor, Pesticide Biochemistry and Physiology. (January 2011 - Present).

Committee Member, Herbicide Resistance Committee. (2010 - Present).

Editor, Associate Editor, Weed Science Journal. (January 2003 - Present).

Member, IUPAC scientific advisor, Ghent. (January 2018 - May 2019).
