Simeon Kotchoni, PhD

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Dr. Kotchoni is an associate professor in the Department of Pharmaceutical and Biomedical Sciences at California Northstate University, College of Pharmacy (CNUCOP). Prior to joining CNUCOP, he was an assistant Professor at Rutgers University, Camden, New Jersey (2011-2017). He received his B.S. and MS in Biochemistry and Cell Biology from University of Abomey Calavi, Benin, and another MS in Microbiology from Obafemi Awolowo University, Ile-Ife, Nigeria. He received his Ph.D. from the University of Bonn, Germany, where he study the role of Aldehyde Dehydrogenase (ALDH) Gene superfamily in a model plant, Arabidopsis thaliana. After his Ph.D., Dr. Kotchoni has worked as a postdoctoral researcher in Europe (Bonn, Germany), and USA (West Virginia University and Purdue University), using interdisciplinary research techniques, including molecular genetics, cell biology, proteomics, transcriptomics, metabolomics to understand the molecular and cellular mechanisms of growth development and environmental adaptation of organisms.

The Kotchoni laboratory studies health benefits of natural products, especially, medicinal plants, and micororganisms. We focus on understanding the molecular and clinical effects of natural-derived compounds on chronic diseases and developing botanical therapeutics for health promotion and wellness. Our work extends to worldwide research collaborations on drug discovery and development. Drug discovery from natural products represents a re-visited area of active interest. In a multi-disciplinary investigator collaboration, our laboratory is currently developing small molecules from natural products against diabetes, Hepatitis B Virus, prostate, brain, breast and colon cancers with limited or no side effects.

Courses taught: Aromatherapy and Techniques in Metabolomics

Selected Publications (from 104 papers: https://www.researchgate.net/profile/Simeon_Kotchoni)

1. Missihoun TD, **Kotchoni SO.**, Bartels D. Aldehyde Dehydrogenases Function in the Homeostasis of Pyridine Nucleotides in Arabidopsis thaliana. Nature, Scientific Reports. 2018, 8: 2936. DOI:10.1038/s41598-018-21202-6.
2. Missihoun TD, **Kotchoni SO.** Aldehyde dehydrogenases may modulate signaling by lipid peroxidation-derived bioactive aldehydes. Plant Signaling and Behavior. 2017; 12(11): e1387707.
3. **Kotchoni SO.**, Kibiti C., Gachomo B., Jimenez-Lopez J.C., Martin J.V., Emergence of Herbal Medicine as a New Trend in Pharmacological Management of Diabetes Mellitus. In: Recent **Progress in Medicinal Plants**. 2017; Chapter 9, pp: 171-188.
4. Sakirigui A., Gbaguidi F, Kasséhin U.C., Poupaert J., Accrombessi G.C., **Kotchoni S.O.** Structural and antitrypanosomal data of different carbasones of piperitone. Data in Brief. 2016; 9: 1039-1043.
5. **Kotchoni SO**, Gachomo EW, Slobodenko K, Shain DH. AMP DEAMINASE suppression increases biomass, cold tolerance and oil content in green algae. Algal Research. 2016; 16: 473-480.
6. Missihoun T.D., **Kotchoni S.O.**, Bartels, D. Active site of REDUCED EPIDERMAL FLUORESCENCE 1 (REF1) isoforms contain amino acid substitutions that are different between monocots and dicots. PLOS ONE. 2016; 11(10): e0165867.
7. Glinma B, Kpoviessi SD, Gbaguidi FA, Kapanda CN, Bero J, Quetin-Leclercq J, Moudachirou M, Poupaert J, Accrombessi GC, Gachomo EW, Baba-Moussa L, **Kotchoni SO.** Trypanocidal and cytotoxic evaluation of synthesized thiosemicarbazones as potential drug leads against sleeping sickness. Molecular Biology Reports. 2014; 41(3): 1617-1622.
8. Jimenez-Lopez JC, Wang X, **Kotchoni SO**, Huang S, Szymanski DB, Staiger CJ., Heterodimeric capping protein from Arabidopsis is membrane-associated, actin-binding protein. Plant Physiology. 2014; 166: 1312-1328.
9. Gbenou J. D., Ahounou J.F., Akakpo H. B., Yayi E., Laleye A., Gbaguidi F., Baba-Moussa L., Darboux R., Dansou P., Moudachirou M., **Kotchoni S.O.** Phytochemical composition of Cymbopogon citratus and Eucalyptus citriodora essential oils and their anti-inflammatory and analgesic properties on Wistar rats. Molecular Biology Reports. 2013; 40(2): 1127-1134.

10. Jimenez-Lopez JC, **Kotchoni SO**, Hernandez-Soriano MC, Gachomo EW, Alché JD. Structural functionality, catalytic mechanism modeling and molecular allergenicity of phenylcoumaran benzylic ether reductase, an olive pollen (Ole e 12) allergen. Journal of Computational Aided Molecular Design. 2013; 27: 873-895.
11. Jimenez-Lopez J.C., Gachomo E.W., Ariyo O.A., Baba-Moussa L., **Kotchoni S.O.** Specific conformational epitope features of pathogenesis-related proteins mediating cross-reactivity between pollen and food allergens. Molecular Biology Reports. 2012; 39(1): 123-130.
12. Jimenez-Lopez J.C., **Kotchoni S.O.**, Rodríguez-García M.I., Alché J.D. Structure and functional features of olive pollen pectin methylesterase using homology modeling and molecular docking methods. Journal of Molecular Modeling. 2012; 18(12): 4965-4984
13. Jimenez-Lopez J.C., Gachomo E.W., Ariyo O.A., Baba-Moussa L. and **Kotchoni S.O.** Specific conformational epitope features of pathogenesis-related proteins mediating cross-reactivity between pollen and food allergens. Molecular Biology Reports. 2012; 39(1): 123-130.
14. Baba-Moussa L., Sina H., Scheftel J.M., Moreau B., Sainte-Marie D., **Kotchoni S.O.**, Prévost G., Couppié P. Staphylococcal Panton-Valentine leucocidin as a major virulence factor associated to furuncles. PLoS One. 2011; 6(10): e25716.
15. **Kotchoni S.O.**, Jimenez-Lopez J.C., Gachomo E.W. Seufferheld M.J., A new and unified nomenclature for male fertility restorer (RF) proteins in higher plants. PLOS ONE. 2010; 5(12): e15906.
16. Zhang C., **Kotchoni S.O.**, Samuels L., Szymanski D.B., SPIKE1 signals originate from and assemble specialized domains of the endoplasmic reticulum. Current Biology. 2010; 20(23): 2144-2149.
17. **Kotchoni S.O.**, Zakharova T., Mallery E.L., El-Din El-Assal S., Le J., Szymanski D.B., The association of the Arabidopsis actin-related protein (ARP) 2/3 complex with cell membranes is linked to its assembly status, but not to its activation. Plant Physiology. 2009; 151(4): 2095-2109.