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My research interests include plant lipid signaling, hormonal cross-talk and plant-microbe interactions.

In animals, NAEs have been implicated in a variety of pathophysiological conditions including apoptosis and immunological stresses. Since NAE-mediated regulatory pathway is highly conserved between plants and animals (Kilaru et al., 2007) it is pertinent to consider the various implications NAEs may have in plants. We have characterized *Arabidopsis* mutants with altered NAE metabolism (Wang et al., 2006) and the likely role for NAEs as negative growth regulators and their ability to interact with other plant hormones, specifically abscisic acid (stress hormone) is emerging (Teaster et al., 2007).

Unraveling the NAE oxidative pathway has been my main focus. The oxidative product(s) of polyunsaturated NAEs, NAE-oxylipins, may have independent physiological effects on plant growth. We intend to address 1) if there is a preferential NAE metabolic pathway that is dependent on the plant developmental stage, 2) the role of NAE-oxylipins, 3) implications of saturated and unsaturated species of NAE, 4) if there a cross talk between NAE-oxylipins and other oxylipins and/or hormones.

For more detailed information on this project see [NAE page](#).

## **EDUCATION**

**Ph.D.** (Environmental and Evolutionary Biology) 2005, University of Louisiana at Lafayette, USA

**Dissertation:** Understanding Witches' Broom Disease: Morphological, Physiological, and Molecular Changes during the Interaction of *Crinipellis perniciosa* and *Theobroma cacao* (Advisor: [Karl H Hasenstein](#))

**M.Sc.** (Biotechnology) 1993, Maharaja Sayajirao University, Baroda, India

**Thesis:** Role of calcium on epiphyllous bud dormancy break in *Kalanchoe mortegi* (Advisor: Yogesh T Jasrai)

**B.Sc.** (Majored in Botany, Zoology & Chemistry) 1991, Andhra University, Eluru, India

**Project:** Determination of maximum protein content in pulses (legumes)

## **PUBLICATIONS**

1. **Kilaru A**, Blancaflor EB, Venables BJ, Tripathy S, Mysore K, and Chapman KD (2008) The *N*-Acylethanolamine-mediated regulatory pathway in plants. In: Didier M Lambert (Editor). ***Cannabinoids in Nature and Medicine***, Weinheim, Germany, John Wiley & Sons

2. Liu M, **Kilaru A**, and Hasenstein KH (2008) Abscisic acid changes in primary roots and root protoplasts of *Zea mays* L. to lanthanum stress. **Journal of Plant Growth Regulation** 27: 19-25
3. **Kilaru A**, Bailey BA and Hasenstein KH (2007) *Moniliophthora perniciosa* produces hormones and alters endogenous auxin and salicylic acid in infected cocoa leaves. **FEMS Microbiology Letters** 274: 238-244
4. Teaster ND, Motes CM, Tang Y, Wiant WC, Cotter MQ, Wang Y, **Kilaru A**, Venables BJ, Hasenstein KH, Gonzalez G, Blancaflor EB and Chapman KD (2007) *N*-Acylethanolamine metabolism interacts with abscisic acid signaling in *Arabidopsis thaliana* seedlings. **Plant Cell** 19: 2454-2469
5. **Kilaru A**, Blancaflor EB, Venables BJ, Tripathy S, Mysore K, and Chapman KD (2007) The *N*-Acylethanolamine-mediated regulatory pathway in plants. **Chemistry & Biodiversity** 4: 1933-1955
6. Wang YS\*, Shrestha R\*, **Kilaru A**, Wiant W, Venables BJ, Chapman KD, and Blancaflor EB (2006) Manipulation of *Arabidopsis* fatty acid amide hydrolase expression modifies plant growth and sensitivity to *N*-acylethanolamines **Proceedings of National Academy of Sciences** 103: 12197-12202 (\*first co-authors)
7. **Kilaru A** (2005) Witches' broom disease: The interaction between *Crinipellis perniciosa* and *Theobroma cacao*. University of Louisiana at Lafayette, AAT 3167949; 1-158
8. **Kilaru A** and Hasenstein KH (2005) Development and pathogenicity of the fungus *Crinipellis perniciosa* on interaction with cacao leaves. **Phytopathology** 95:101-107 (Featured cover)
9. **Kilaru A**, Bailey BA and Hasenstein KH (2004) Weapons of mass destruction - genetic warfare between *Theobroma* and *Crinipellis*. **Phytopathology** 94: S51-S52
10. **Kilaru A** (1998) Micropropagation of sugarcane - a commercial approach. Proceedings of 60th annual convention of sugar technologists association, India, 81-86

#### **ABSTRACTS SUBMITTED FOR ORAL PRESENTATIONS**

1. Is there an endocannabinoid signaling in plants? Second National Meeting of the Association of Scientists of Indian Origin in America, Denton TX, USA, 2007
2. *N*-Acylethanolamine (NAE) metabolism influences growth and stress responses in plants. Annual meeting of American Society of Plant Biologists, Southern Section, Daytona Beach, FL, USA, 2006
3. Weapons of mass destruction- genetic warfare between *Theobroma* and *Crinipellis*. Annual meeting of American Phytopathological Society, Anaheim, CA, USA, 2004
4. Gene expression during host-pathogen interaction associated with witches' broom disease. Annual meeting of American Society of Plant Biologists, Southern Section, Lafayette, LA, USA, 2004
5. Gene expression during host-pathogen interactions. Annual Sigma Xi Student Research Symposium. UL Lafayette, LA, USA, 2004
6. Morphological and molecular strategies in host-parasite interaction. Annual Graduate Student Symposium, UL Lafayette, LA, USA, 2003
7. Protein induction in *Theobroma cacao* upon infection with *Crinipellis perniciosa*. Annual Graduate Student Symposium, UL Lafayette, LA, USA, 2003
8. Morphological changes during witches' broom disease. Annual Sigma Xi Student Research Symposium. UL Lafayette, LA, USA, 2003

9. A Model system to study host-pathogen Interaction. Annual Sigma Xi Student Research Symposium, UL Lafayette, LA, USA, 2003
10. Micropropagation of Sugarcane-A commercial approach. Annual Convention of Sugar Technologists Association of India. Shimla, India, 1998
11. Calcium and growth reactivation of dormant epiphyllous buds of *Kalanchoe mortegi*. National Seminar on Newer challenges in Agriculture, Horticulture and Industry: The role of physiologist and biochemist. Bangalore, India, 1994

#### **ABSTRACTS SUBMITTED FOR POSTER PRESENTATIONS**

1. Lipoxygenase-mediated oxidation of polyunsaturated *N*-acyl ethanolamines. The Gordon Conference on Plant Lipids, Galveston, Texas, USA, 2009
2. *N*-Acyl ethanolamine (NAE) metabolism impacts seedling growth and interacts with ABA signaling in *Arabidopsis* seedlings. The 19th International Conference on Arabidopsis Research, Montreal, Canada, 2008
3. Analysis of *N*-Acyl phosphatidylethanolamine using electrospray ionization tandem mass spectrometry. The 8th Biennial International Scientific Meeting of International Society for the Study of Fatty Acids and Lipids, Kansas City, Missouri, USA, 2008
4. Production of novel NAE-oxylipin metabolites by plant lipoxygenase pathway enzymes. Annual meeting of American Society of Plant Biologists. Merida, Mexico, 2008
5. Analysis of *N*-Acyl phosphatidylethanolamine using electrospray ionization tandem mass spectrometry. 56<sup>th</sup> American Society for Mass Spectrometry Conference, Denver, CO, USA, 2008
6. Analysis of *N*-acyl phosphatidylethanolamines from Arabidopsis seeds and seedlings using electrospray ionization tandem mass spectrometry. National Plant Lipid Cooperative, Fallen Leaf, CA, USA, 2007
7. *N*-acyl ethanolamine (NAE) metabolism impacts growth and interacts with ABA signaling in *Arabidopsis thaliana* seedlings. Annual meeting of American Society of Plant Biologists. Chicago, IL, USA, 2007
8. Manipulation of Arabidopsis fatty acid (ethanol) amide hydrolase (FAAH) expression leads to plants with modified growth characteristics and altered sensitivity to *N*-acyl ethanolamines (NAEs). Annual meeting of American Society of Plant Biologists. Boston, MA, USA, 2007
9. *N*-Acyl ethanolamine Metabolism Interacts with ABA Signaling in *Arabidopsis thaliana*. The 17th International Symposium on Plant Lipids, East Lansing, MI, USA, 2006
10. Host-pathogen interaction altered endogenous phytohormone levels in cocoa leaves. 12th International Congress on Molecular Plant-Microbe Interactions, Merida, Mexico, 2005
11. Changes in the endogenous phytohormones after host-pathogen interactions. Annual meeting of American Society of Plant Biologists. Seattle, WA, USA, 2005
12. Altered gene expression during host-pathogen interaction of witches' broom disease. Annual meeting of American Society of Plant Biologists. Orlando, FL, USA, 2004
13. Scanning electron microscopy of witches' broom disease in *Theobroma cacao*. Annual meeting of American Phytopathological Society, Charlotte, NC, USA, 2003
14. Scanning electron microscopy of witches' broom disease in *Theobroma cacao*. Annual meeting of American Society of Plant Biologists. Honolulu, HI, USA, 2003

15. Protein induction in *Theobroma cacao* upon infection with *Crinipellis pernicioso*. Annual meeting of American Society of Plant Biologists. Denver, CO, USA, 2002
16. Protein induction in *Theobroma cacao* upon infection with *Crinipellis pernicioso*. The X International Congress on Plant Tissue Culture and Biotechnology: 2002 and Beyond. Orlando, FL, USA, 2002

#### **INVITED TALKS**

- School of Life Sciences, University of Hyderabad, Hyderabad, India, 2008
- International Center for Genetic Engineering and Biotechnology (ICGEB), New Delhi, India, 2007
- School of Life Sciences, Jawaharlal Nehru University (JNU), New Delhi, India, 2007
- Indian Agricultural Research Institute (IARI), New Delhi, India, 2007
- School of Life Sciences, University of Hyderabad, Hyderabad, India, 2007
- Center for Cellular and Molecular Biology (CCMB), Hyderabad, India, 2007
- Department of Plant Biochemistry, August-Georg University, Göttingen, Germany, 2007
- 2<sup>nd</sup> Pan American Plant Membrane Biology Workshop, South Padre, TX, USA, 2006
- Department of Biological Sciences, University of North Texas, Denton, TX, USA, 2005
- Department of Biology, University of Louisiana, Lafayette, LA, USA, 2004
- Agricultural Research Station, USDA Beltsville, MD, USA, 2004
- Evolutionary Biology Group, University of Louisiana, Lafayette, LA, USA, 2004

#### **HONORS RECEIVED**

- Travel award - Gordon Conference on Plant Lipids (2009)
- ASPB postdoctoral travel award (2008, 2009)
- Best postdoctoral presentation award at Second National Meeting of the Association of Scientists of Indian Origin in America, Denton TX, USA (2007)
- Deans' fellowship for the final semester, UL Lafayette (2005)
- Sigma XI Grants-in-Aid of Research (2005, 2001)
- MPMI student travel award, XII International Congress on Plant-Microbe Interactions (2005)
- Steuben award, UL Lafayette (2005, 2003)
- Secured funds from Graduate Student Organization and Student Government Association, UL Lafayette, in support for travel and research (2000-2005)
- Best of the show award for micrographs exhibited for "Art in APS" program at Annual American Phytopathological Society meeting (2004)
- Recognized by Phi Kappa Phi Honors Society (2004)
- Second prize for oral presentation at Sigma Xi symposium (2004)
- ASPB student travel award (2004, 2002)
- Honors student recognition, UL Lafayette (2002, 2003; GPA 4.0)
- Best oral presentation award at Sigma Xi UL symposium (2003)
- Andhra Pradesh Forest Development Corporation Ltd., (APFDC) awarded Rs. 50,000 to attend IAPTC Congress on Plant Biotechnology in Israel (1998)
- Best oral presentation in the young scientist category at the Society for Plant Physiology & Biochemistry, Bangalore, India (1994)
- National merit scholarship to pursue Masters' Degree in Biotechnology (1991-93)

## **FEATURED NEWS/ARTICLES**

- [Membership corner](#), Jan/Feb 2008, ASPB News, Vol. 35, No.1 Pg 19.
- [Letter: Why Become \(and Remain\) a Scientist?](#) 2007, ASPB News, Vol. 34, No.6 Pg 12.
- [Cacao-Related Research](#) at University of Louisiana at Lafayette, Research Update: April-2006, World Cocoa Foundation.
- [Art in phytopathology](#), Aruna Kilaru, University of Louisiana, Lafayette. APSnet feature November 2004.
- Biology department attempts to save cacao trees from witches' broom, The Vermillion, Pg 11, 13, July 23, 2003.
- AP tissue culture project to produce fruit plants, The Hindu, Business Line, Pg 21, November 6, 1996.

## **SYNERGISTIC ACTIVITIES**

- Postdoctoral Ambassador for American Society of Plant Biologists (ASPB, 2008)
- Vice Chair of Graduate Student Committee (2004), and member of Tropical Plant Pathology committee (2004-07) of The American Phytopathological Society.
- Committee member for Graduate Student Organization (2004), Department of Biology, UL Lafayette
- Acted as judge for science fair every year since 2001 for grades K1-12
- Volunteer for education outreach program of ASPB since 2001
- Member of International Ambassador Program of Sigma Xi
- I participated in several National Social Service and adult literacy programs in India prior to 2000
- Amateur writer and photographer

## **PROFESSIONAL AFFILIATIONS**

- American Society of Plant Biologists
- Association for Women in Science
- Indian Science Congress
- National Postdoctoral Association
- Phi Kappa Phi Honors Society
- Society of Sigma Xi