

# PRASAD S. BURANGE

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## *Curriculum Vitae*

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### EDUCATION AND CREDENTIALS

**Ph.D.**, (Entomology Major), anticipated completion in 2008  
*North Dakota State University, Fargo, ND, USA*

**M.S.**, (Agricultural Entomology Major), 1999

**B.S.**, (Agricultural Sciences), 1997

*Dr. Panjabrao Deshmukh Agricultural University, Akola (M.S), India*

### PROFESSIONAL EXPERIENCE

- NORTH DAKOTA STATE UNIVERSITY, Department of Entomology, Fargo, ND; **August 2003-Present**  
**Ph.D., Graduate Research Assistant**  
Molecular approaches for characterizing the genetic profile, geographic variation, phylogeny, and phylogeographic patterns of the *Lygus* insect genus in North America.
  
- CENTRAL INSTITUTE FOR COTTON RESEARCH (C.I.C.R.), Nagpur, India; **2001-2003**
  - a) **Title: Research Associate**  
Developed morphological, physiological, and molecular tools for identification and differentiation of cotton pest biotypes, with special emphasis on the American cotton bollworm, *Helicoverpa armigera* (based on its feeding behavior).
    - ✓ Monitored *H. armigera* from different states of India for insecticide-resistant strains
    - ✓ Investigated genetic and metabolic mechanisms of insecticide resistance in *H. armigera*
    - ✓ Collected wide species of insects
  
  - b) **Title: Senior Research Fellow, *Bacillus thuringiensis* (Bt) Transgenic Cotton for Insect Resistance under the National Agricultural Technology Project (NATP)**  
Measured resistance of *H. armigera* (collected from Central India) to *Bacillus thuringiensis* (Bt) toxins.
    - ✓ Screened Bt crystal protein toxins - Cry1Ac, Cry2Aa, and Cry1Aa for resistance to Bt  $\delta$ -Endotoxins.

## Additional Experience

Participated on a team of experts assigned by the Federal Government of India's Ministry of Environment and Forest to impart molecular technique training to Advisory Officials of the Forest & Environment and Agricultural Department of the State of Gujarat, India. This training was designed to enable officials to distinguish genetically engineered *Bt* cotton from conventional cultivars and to avert unlawful production/distribution of patented material.

- IIT-BIOTECHNOLOGICAL RESEARCH & EXTENSION FOUNDATION (BREF) - BIOTEK LABORATORY, INDIAN INSTITUTE OF TECHNOLOGY, Kharagpur, India; **1999-2000**

### **Research Assistant, Development of Cotton Bollworm Resistant Transgenic Plant**

Helped develop *H. armigera*-resistant *Bt* endotoxin-expressing transgenic cotton for cotton growers of India.

- ✓ Conducted feeding bioassays of *Bt* on first-instar larvae of *H. armigera* on semi-synthetic diet
- ✓ Screened Indian populations of *H. armigera* for resistance to transgenic *Bt* cotton lines
- ✓ Quantified lethal concentration and dosage levels to identify resistant strains
- ✓ Attempted to locate and identify the CryI $\alpha$ C receptor in Border Brush Membrane Vesicles of the midgut of susceptible *H. armigera*
- ✓ Received specialized training on protein isolation & purification from insect systems and on plant tissue culture

- CENTRAL INSTITUTE FOR COTTON RESEARCH (C.I.C.R.), Nagpur, India; **1998-1999**

### **Volunteer Student Assistant, Biocontrol-based Integrated Pest Management in Cotton Cropping System**

- ✓ Aided supervisor in laboratory rearing of aphids and *H. armigera*
- ✓ Received training in systematics of aphididae

- COLLEGE OF AGRICULTURE, Nagpur, India; **1996**

### **B.S. student, Integrated Pest Management System Approach in Cotton Pest Management**

- ✓ Conducted a brief study of different IPM modules in Non-Violent Insect Management Systems (NOVIMS)

## PUBLICATIONS

1. Deole S, Gadpayle J, **Burange PS**, & Rajendran TP (2003). Comparative evaluation of botanical and bioagent formulations against *Helicoverpa armigera* (Hubner) in chickpea crop under central Indian conditions. *Pestology* **27**: 19-21.
2. Talmaley PM, Rane AE, & **Burange PS** (2002). Population dynamics of pests of aster (*Callistepus chinensis*) around Nagpur (Maharashtra Region). *Journal of Soils & Crops* **12**(2): 305-307.
3. Talmaley PM, Rane AE, Ali SS, & **Burange PS** (2002). Occurrence of insect pests of gaillardia (*Gaillardia pulchella*). *Journal of Soils & Crops* **12**(1): 101-104.

4. Ramteke MS, Peshkar LN, **Burange PS**, & Panchbhai PR (2002). Efficacy of neem seed kernel extract in comparison to *Bacillus thuringiensis* L. and *HaNPV* in the management of *Helicoverpa armigera* (Hub.) on chickpea. *Pestology* **26**(1): 45-47.
5. **Burange PS**, Ravindran CD, & Talmaley PM (2001). Population build-up of *Macrosiphum rosae* Linna. on *Rosa chinensis* Jacq. in central India. *Journal of Aphidology* **15**: 171-174.
6. Ghadekar SR, Tajane VS, **Burange PS**, Masal UN, & Potkile PS (1997). An analytical study on the monsoon patterns & length of crop growing periods of the vertisol of Nagpur (Maharashtra State), India. *Journal of Soils & Crops* **7**(1): 4-7.
7. Ghadekar SR, **Burange PS**, Tajane VS, Masal UN, & Potkile PS (1997). Drought climatology of Nagpur region based on receding rainfall. *Journal of Soils & Crops* **7**(1): 19-22.

## MANUSCRIPTS UNDER PREPARATION

1. Roehrdanz RL, Cameron S, **Burange PS** & Sears SG. Mitochondrial genome of *Lygus lineolaris* and *Lygus hesperus*.
2. **Burange PS**, Roehrdanz RL, & Boetel MA. Genetic diversity of *Lygus lineolaris* in North America based on mtDNA sequences.
3. **Burange PS**, Roehrdanz RL, & Boetel MA. Phylogenetic study of *Lygus* (Heteroptera: Miridae) inferred from mitochondrial *cox1* and *cox2* DNA sequence data.
4. **Burange PS**, Roehrdanz RL, & Boetel MA. Mitochondrial DNA genetic variation among *Lygus lineolaris* (Heteroptera: Miridae) in Red River Valley of North Dakota.

## SEMINARS & PRESENTATIONS

1. **Burange PS**, Roehrdanz RL, & Boetel MA. "Mitochondrial DNA Sequences from North American Species of *Lygus*". Student competition, Ph.D. paper (Sections A), Entomological Society of America, Annual meeting, San Diego, CA, U.S.A.; December 2007.
2. Roehrdanz RL, Footit R, **Burange PS**, Maw E, & Boetel MA. "Molecular Phylogeny and Genetic Diversity of *Lygus*". Oral presentation at the 2nd International *Lygus* Symposium, Pacific Grove, CA, U.S.A.; April 2007.
3. **Burange PS**, Roehrdanz RL, & Boetel MA. "Mitochondrial DNA Sequences from North American Species of *Lygus*". Student competition, Ph.D. paper (Sections A-B), Entomological Society of America, North Central Branch meeting, Winnipeg, Manitoba, Canada; March 2007.
4. **Burange PS**, Roehrdanz RL, & Boetel MA. "*Lygus* genetics: Inter- and Intraspecific Mitochondrial Genetic Diversity in North America". Student competition for The President's Prize in display presentations at the National Meeting of The Entomological Society of America, Indianapolis, IN, U.S.A.; December 2006.
5. **Burange PS**. "Molecular Marker Systems in Insects: Current Trends and Future Avenues" paper by Susanta Behura. Journal Club, USDA-ARS Biosciences Research Laboratory, Fargo, ND, U.S.A.; September 2006.

6. **Burange PS**. "Ten Species in One: DNA Barcoding Reveals Cryptic Species in the Neotropical Skipper Butterfly *Astrartes fulgerator*" paper by Paul D. N. Hebert et al., Journal Club, USDA-ARS Biosciences Research Laboratory, Fargo, ND, U.S.A.; May, **2006**.
7. **Burange PS**, Roehrdanz RL, & Boetel MA. "Intra- and Interspecific Genetic Diversity of the *Lygus* Pest Complex in North America". Student competition for The President's Prize in Oral Presentations at the National Meeting of The Entomological Society of America, Ft. Lauderdale, FL, U.S.A.; December **2005**.
8. **Burange PS**, Roehrdanz RL, & Boetel MA. "Intraspecific Genetic Diversity of the *Lygus* Genus". Poster, International Symposium on Ecology and Management of *Lygus* Plant Bugs, Ottawa, ON, Canada; January **2005**.
9. **Burange PS** & Rane AE. "Studies on the Population Build-up of *Macrosiphum* sp. on *Vinca rosea* (Apocynaceae) in Central India". Oral presentation at the 7<sup>th</sup> National symposium on Aphidology, Gorakhpur (U.P.), India; March **2000**.

## AWARDS

- Non-Faculty Travel Award to attend the Society of America, Annual meeting, San Diego, CA; December **2007**.
- Travel fund from the Dean, Graduate School to attend research meeting in 2007-08 academic year, North Dakota State University, Fargo, ND, USA; August **2007**.
- Knipling Research Enhancement Award to study molecular techniques with Dr. Rebecca Simmons at University of North Dakota. Department of Entomology, North Dakota State University, Fargo, ND, USA; March **2007**.
- **Second Place** honors for Outstanding Paper Presentation in Entomological Research in Student Competition. Entomological Society of America, North Central Branch Meeting, Winnipeg, Manitoba, Canada; March **2007**.
- **Top honors** in the Linnaean games college quiz bowl competition. Team member of North Dakota State University Entomology graduate students. Entomological Society of America, North Central Branch Meeting, Winnipeg, Manitoba, Canada; March **2007**.
- Non-Faculty Travel Award to attend the National Meeting of the Entomological Society of America, Ft. Lauderdale, FL, USA; December **2005**.
- Invited for Honorary Presentation as an Outstanding Alumnus at College of Agriculture, Nagpur, to commemorate the College Centenary, Nagpur, India; June **2005**.
- Non-Faculty Travel Award to attend the International Symposium on *Lygus* Ecology & Management, Ottawa, Canada; January-February **2005**.
- Qualified in National Eligibility Test (NET) for Lectureship/Assistant Professorship in Agricultural Entomology (recognized by the Council of Scientific and Industrial Research) conducted by Agricultural Scientist Recruitment Board, I.C.A.R., New Delhi; December **1999**.
- Qualified I.C.A.R.'s All-India Combined Junior Research Fellowship Examination in Plant Protection Group (Rank: 39), June **1997**.

## **AFFILIATIONS**

- Graduate Student Representative, R.L. Post Society, Department of Entomology, NDSU (August 2006 - Current)
- Secretary, Entomology Club, Department of Entomology, NDSU (November 2006 - September 2007)
- Entomological Society of America
- Association of Indian Entomologists in North America
- Entomological Society of India
- Aphidological Society of India
- R.L. Post Society, Department of Entomology, NDSU (August 2003 - Current)
- Journal Club, USDA-BRL Insect Genetics & Biochemistry unit, Fargo, ND

## **OUTREACH, SERVICE, AND PROFESSIONAL SOCIETY ACTIVITIES**

- Student Volunteer, Entomological Society of America, Annual meeting, San Diego, CA; 12-11-**2007** (6.0 hours)
- Served as one of the four panelists for the graduate assistant orientation session, NDSU, Fargo, ND; 08-14-**2007** (2.0 hours)
- Presentation, "Incredible India - An Ancient Land in All Seasons", to celebrate the Asian/Pacific American Heritage Month, Diversity Awareness and Outreach Committee, USDA-ARS Biosciences Research Laboratory, Fargo, ND; 05-23-**2007** (1.0 hour)
- Presentation, 'Around the world – INDIA', Entomology Club, NDSU, Fargo, ND; 04-24-**2007** (1.0 hour)
- Judge, 57<sup>th</sup> Annual North Dakota State Science & Engineering Fair, NDSU, Fargo, ND; 03-30-**2007** (7.0 hours)
- Student Volunteer, Entomological Society of America, North Central Branch meeting, Winnipeg, Manitoba, Canada; 03-28-**2007** (4.0 hours)
- Judge, Southeast North Dakota Regional Science & Engineering Fair, NDSU, Fargo, ND; 03-13-**2007** (2.0 hours)
- Volunteer, Student Activities Fair, NDSU, Fargo, ND; 01-18-**2007** (2.0 hours)
- Departmental Representative, NDSU Student Organization Fair, NDSU, Fargo, ND; 08-30-**2006** (3.5 hours)
- Volunteer, Indo-American Discussion group of Concordia College, MN & NDSU, Fargo, ND; 08-27-**2006** (3.5 hours)
- Volunteer, Training program titled 'What's Bugging you - Learn to Make An Insect Collection', NDSU Entomology Department, Fargo, ND; 07-25-**2006** (2.0 hours)
- Judge, 56<sup>th</sup> Annual North Dakota State Science & Engineering Fair, NDSU, Fargo, ND; 07-04-**2006** (8.5 hours)
- Judge, Southeast North Dakota Regional Science & Engineering Fair, NDSU, Fargo, ND; 03-14-**2006** (8.0 hours)
- Judge, Science Fair, Oak Grove Middle School, Fargo, ND; 02-20-**2006** (4.5 hours)
- Volunteer, Student organization Fair, NDSU, Fargo, ND; 01-19-**2006** (3.5 hours)
- Judge, ND State Science Olympiad (worked on Designer Genes), NDSU, Fargo, ND; 04-16-**2005** (6.0 hours)

- Volunteer, Fund Raising for a needy individual, Fargo, ND; 02-17/18-**2005** (18 hours)
- Departmental Representative, Student Organization Fair, NDSU, Fargo, ND; 09-01-**2004** (3.0 hours)
- Judge, North Dakota State Science Olympiad, NDSU, Fargo, ND; 04-24-**2004** (3.0 hours)
- Judge, 54<sup>th</sup> North Dakota State Science & Engineering Fair, Fargo, ND; 04-02-**2004** (8.0 hours)
- Judge, South East Regional Science Fair at NDSU, Fargo, ND; 03-16-**2004** (9.0 hours)
- Volunteer, “Super Science Saturday”, Yunker Farm Children’s Museum, Fargo, ND; 02-21-**2004** (4.0 hours)
- Judge, Sullivan Middle School Science Fair, Fargo, ND; 02-04-**2004** (2.0 hours)
- Represented a 10-member team of students from Maharashtra State in the National Integration Camp held at G.B.P.U.A.T University, Pant Nagar (U.P.), India, sponsored by the Ministry of Human Resources Development, Government of India; **1997**
- Participated in *Mazda* international photography contest, Japan; **1994**