CURRICULUM VITAE

Navdeep Singh Mutti
123 West Waters Hall
Manhattan KS-66506
navdeep@ksu.edu
Ph: 785-532-6125

Academic Background

- Ph.D. Entomology, Kansas State University, USA. "Studies on the salivary proteins from salivary gland cDNA library of Pea aphid". Expected March 2006.
- M.Sc. Entomology, Punjab Agricultural University, Ludhiana, India. "Studies on the role of glucosinolates in rapeseed-mustard and mustard aphid interactions". September 1998.
- B.Sc. (Honors). Punjab Agricultural University, Ludhiana, India. August 1996.

Teaching Experience

- Research Fellow in the project "Management of major insect-pests of rice agro-ecosystem with eco-friendly neem based formulations." Punjab Agricultural University, Ludhiana. India, December 1998 to June 1999.
- District Extension Specialist, Department of Entomology, Punjab Agricultural University, Ludhiana. India, June 1999 to Feb 2001.
- Assistant Entomologist, Department of Entomology, Punjab Agricultural University, Ludhiana. India, March 2001 to July 2001.
- Graduate Research Assistant at Kansas State University, Manhattan, Kansas, August 2001 to date.
- Graduate Teaching Assistant 2004
    - General Biochemistry BIOCH521 (on campus)
    - General Biochemistry BIOCH521 (online course)
- Graduate Teaching Assistant 2005
    - Recombinant DNA Laboratory I BIOCH766
    - Recombinant DNA Laboratory II BIOCH767

Research Experience

Ph.D. project:

Pea aphid: Studies on the salivary proteins from salivary gland cDNA library.

- Created a salivary specific cDNA library and sequenced several thousand randomly selected clones and analyzed EST using BLAST programs (NCBI).
- Cloned and characterized C002, the most abundant cDNA in our library.

- Developed RNAi in pea aphid and examined the effect of C002 transcript on feeding behavior, survival and fecundity using RNAi.

Side projects:

Rice weevil: Horizontal gene transfer of pectinases.

- Provided evidence for horizontal gene transfer of Pectin Methyl Esterase and Polygalacturanase from endosymbionts to weevil genome.

Hessian fly: Catalog for the transcripts and proteins from the salivary gland.

- Created a salivary gland cDNA library.
- Bac library screening with 6 different cDNA's encoding secreted proteins.
- Northern blotting to study expression of various secreted proteins in different stages of development of hessian fly.

Zebrafish: Effect of heat shock on expression of Heat shock proteins.

- Heat shock proteins in development and disease in Zebrafish.
- 2-D gel electrophoresis followed by western blotting using Hsp70 antibodies
- Working on Hsp30 expression.

Research Publications

1. **Mutti N.S.**, Pappan K., Begum K., Pappan L.K., Chen M.S., Park, Y., Reese J.C. and Reeck G.R. Characterization of a novel protein from salivary glands of the pea aphid, *Acyrthosiphon pisum*. (In preparation).
2. **Mutti N.S.**, Park Y., Reese J.C., and Reeck G.R. RNAi knockdown of a salivary transcript leading to lethality in the pea aphid (A*cyrthosiphon pisum*). *Journal of Insect Science*. (Submitted).
3. Liu X., Fellers J.P., Zhu Y.C. **Mutti N.S.**, Bouhssini M.E. and Chen M.S. cloning and characterization of cDNAs encoding carboxypeptidase-like proteins from the gut of Hessian fly [*Mayetiola destructor* (Say)]. *Insect Biochemistry and Molecular Biology*. (Submitted).
4. Shen Z., Pappan K., **Mutti N.S.**, He Q-J., Denton M., Zhang Y., Kanost M.R., Reese J.C., and Reeck G.R. 2005. Pectinmethylesterase from the rice weevil, Sitophilus oryzae: cDNA isolation and sequencing, genetic origin, and expression of the recombinant enzyme. *Journal of Insect Science.* 5:21.
5. Dilawari V.K., **Singh Navdeep**, Kumari Anita and Dhaliwal G.S. 2003. Effect of glucosinolates on the feeding behaviour of mustard aphid *Lipaphis erysimi* (Kaltenbach). *Allelopathy Journal* 12(2): 221-228.
6. Shen Z., Denton M., **Mutti Navdeep**, Pappan K., Kanost M.R., Reese J.C., Reeck G.R. (2003). Polygalacturonase from Sitophilus oryzae: Possible horizontal transfer of a pectinase gene from fungi to weevils. *Journal of Insect Science.* 2003. 3:24.

7. Kumar P., Gupta V.K., **Navdeep Singh** and Dilawari V.K. 2001. Development of RAPD-PCR based molecular markers for differentiation and genetic relatedness in *Trichogramma* species/ strains. In Darshan Singh, V.K.Dilawari, M.S.Mahal, K.S.Brar, A.S.Sohi and S.P.Singh. 2001.Biological control-Contributed papers. *Proceedings of Symposium on Biological Control Based Pest Management for Quality Crop Protection in the Current Millenium*, July 18-19,2001 PAU, Ludhiana. p.3-5.
8. **Singh Navdeep**, Dilawari V.K. and Dhaliwal G.S. (2000). Alighting behaviour and redistribution of mustard aphid, *Lipaphis erysimi* (Kalt.) on different rapeseed cultivars. *J. Insect Sc*. (India) Vol 13: 59-61.

Awards and Honors

- Don Warren Genetics Award in the College of Agriculture, 2004-05.
- NSF-EPSCoR travel grant, 2004.
- Don Warren Genetics Award in the College of Agriculture, 2003-04.
- R.H. Painter award, 2003-04.
- First Rank, Merit Gold Medal in M.Sc. (Entomology), Punjab Agricultural University, 1998.
- Merit Scholarship in M.Sc. (Entomology), Punjab Agricultural University, 1996-1998.
- Merit Certificate in M.Sc. (Entomology), Punjab Agricultural University, 1998.

Talks and Posters

- Navdeep S. Mutti, John C. Reese and Gerald R. Reeck. RNAi in Pea aphid. In Symposium: Genomic Technologies Workshop. ESA Annual meeting, Fort Lauderdale, December, 2005.
- Navdeep S. Mutti, Yoonseong Park, John C. Reese and Gerald R. Reeck. RNAi studies on a salivary transcript in the pea aphid, *Acyrthosiphon pisum*, ESA Annual meeting, Fort Lauderdale, December, 2005.
- Navdeep S. Mutti, John C. Reese and Gerald R. Reeck. Cloning and Characterization of a Novel Gene from the Salivary Glands of Pea Aphid, *Acyrthosiphon pisum* (Harris). Annual meeting ESA, Salt Lake City, November, 2004.
- Linnean games at the North-Central Branch meeting (ESA), Kansas City, March, 2004.
- Navdeep Mutti, Kirk Pappan, Jon Bruno, Loretta K. Pappan, Marisol Castaneto, Ming-Shun Chen, John Reese and Gerald R. Reeck. An EST library from salivary glands of the pea aphid, *Acyrthosiphon pisum*. Annual meeting ESA, Cincinnati, October, 2003.
- Linnean games at the North-Central Branch meeting (ESA), East Lansing, March, 2002.

Technical Experience

- Cloning and recombinant protein expression in bacterial and Drosophila S2 cells.
- 2-D gel electrophoresis/western blotting.
- In situ hybridization.
- Immunohistochemistry.
- RNAi.
- Dissections of aphid tissues.
- Bioinformatics tools.
- Transformation of wheat plants introducing pea aphid, C002.
- Antibody production using recombinant protein.

Memberships and Affiliations

- Entomological Society of America.
- Central States Entomological Society.
- Indian Society for the Advancement of Insect Science.

References

1. Dr. Gerald R. Reeck
   Professor of Biochemistry
   Kansas State University
   Manhattan, KS-66506
   Phone: 785-532-6125
   Email: reeck@ksu.edu

2. Dr. Michael R. Kanost
   University Distinguished Professor and Department Head
   Department of Biochemistry
   Kansas State University
   Manhattan, KS-66506
   Phone: 785-532-6964
   Email: kanost@ksu.edu

3. Dr. John C. Reese
   Professor of Entomology
   Kansas State University
   Manhattan, KS-66506
   Phone: 785-532-4708
   Email: jreese@ksu.edu

4. Dr. Ming-Shun Chen
Associate Professor
Department of Entomology
Kansas State University
Manhattan, KS-66506
Phone: 785-532-4719
Email: mchen@ksu.edu