

## MARY SAMUEL, M.S.

### EDUCATION:

1999. M Phil., Botany, Madras Christian College, Chennai, India.

1997. M.S., Botany, Madras Christian College, Chennai, India.

1995. B.S., Botany, Women's Christian College, Chennai, India.

### SPECIALTY/TECHNICAL COURSES:

1998. Diploma in End User Computing, First Computers, Chennai, India.

### PROFESSIONAL EXPERIENCE:

2005-Present. Staff Scientist, Cambridge Environmental Inc., Frederick, Maryland.

2000-2005. Junior Staff Scientist, Dynamac Corporation, Germantown, Maryland.

2000. Biology Instructor, Prince George's Community College, Largo, Maryland. Taught General Biology and General Biology Laboratory. Prepared and presented lectures on topics covered in the curriculum. Prepared and evaluated exams, quizzes and homework assignments. Assisted students in understanding the course materials.

1998-1999. Editor of Science Journals, TnQ B&J, Madras, India. Served as Junior editor. Edited various science journals encompassing various disciplines of science. Increased overall editing productivity of journals at TnQ B&J. Trained and supervised new associates.

1995-1998. Teaching Assistant, Madras Christian College, Chennai, India. Taught Cell Biology and Genetics to post graduates and undergraduates at Madras Christian College. Interacted with various Botanical research firms to learn about new advances in Botany, such as Biotechnology, Genetic Engineering and Gene Cloning. Actively participated in field trips involving the collection of endemic specimen and preparation of herbarium. Written a thesis on "An In Vivo Evaluation on the Mitostatic Effects of Endosulfan and the Modulating Effects of Becosules and Phyllanthus Leaf Extract on the Root Meristem of *Allium cepa* L". Also written a thesis on "In Vivo Evaluation on the Mitostatic Effects of Chlorpyrifos in the Root Meristem of *Allium cepa* L. Presented a paper on "Gene Regulation in Eukaryotes" during an annual meeting of the Botany Society.

## SUMMARY OF EXPERTISE:

More than 11 years of experience analyzing the fate and toxicity of pesticides in the environment in support of the EPA/OPP/EFED Environmental Fate (Fate) and Ecotoxicology contracts, the EPA/OPP/Antimicrobial Division (Antimicrobial) contract, and two Health Canada Pest Management Regulatory Agency (PMRA) contracts.

## SELECTED CONSULTING PROJECT EXPERIENCE:

### US EPA, Office of Pesticide Programs, Environmental Fate and Effects Division, Environmental Fate and Ecotoxicity of Pesticides, Staff Scientist

Conducted primary reviews and evaluation of more than 100 studies on the environmental fate and transport of pesticides using USEPA Pesticide Assessment Guidelines. Reviewed data include laboratory hydrolysis; laboratory photodegradation in water, soil, and air; laboratory biological degradation under aerobic and anaerobic conditions. Edited more than 400 Data Evaluation Records (DERs) for the Fate contracts, summarizing open literature and registrant submitted research on the behavior of pesticides under laboratory and field conditions. Edited data include laboratory hydrolysis; laboratory photodegradation in water, soil, and air; laboratory biological degradation under aerobic and anaerobic conditions, leaching, adsorption/desorption, laboratory and field volatility, aquatic and terrestrial field dissipation, soil storage stability, accumulation in fish, ground water monitoring and droplet size spectrum. Determined adequacy of the experimental design, sampling protocols, and analytical methods; analyzed data using a variety of statistical programs; reached independent conclusions. Compiled data on the fate and transport properties of pesticides from DERs and open literature studies, and generated summary tables to support the development of Risk Assessments for Fate contracts. Conducted literature searches in electronic databases using keywords; retrieved reprints from area libraries. Prepared Data Input Sheets (DISHs) in support of the Environmental Fate database. Extracted critical data from DERs into DISHs, noting any irregularities and when necessary converting data into a format compatible with the database fields. DISHs will be used to populate the Fate database. Created chemical structures of various pesticides and their transformation products using the ISIS and SymyxDraw programs.

### US EPA, Office of Pesticide Programs, Ecological Risk of Pesticides, Staff Scientist

Prepared more than 80 DERs on the acute toxicity of pesticides to plants and nontarget organisms for the Ecotoxicology contracts. Determined adequacy of study design with respect to compliance with EPA guidelines and policies. Reviewed data include LC50 determinations for aquatic invertebrates, oysters, fish, and beneficial insects; seedling emergence and vegetative vigor of terrestrial plants; toxicity testing of aquatic plants; LC50 and reproduction success of avian species; and soil microbial community toxicity tests.

### US EPA, Office of Pesticide Programs, Antimicrobial Division (AD), Staff Scientist

Edited more than 50 DERs for the Antimicrobial contract. Edited data include laboratory hydrolysis; laboratory photodegradation in water, soil, and air; laboratory biological degradation under aerobic and anaerobic conditions, ready biodegradability, aerobic mineralization in surface

water, biodegradability in sea water, porous pot test, simulation test- activated sewage treatment, activated sludge respiration inhibition test, nitrogen and carbon transformation test.

ORIGINAL REPORTS:

Principal author of over 100 reviews of studies on the environmental fate of pesticides that were submitted under Subdivision N Guidelines.

Principal author of over 82 reviews of studies on the ecological risk of pesticides that were submitted under Subdivision E, and J Guidelines.