

## Hands-on Filth Analysis for Food Safety Workshop

November 13<sup>th</sup> – 17<sup>th</sup>, 2017

University of Maryland, Joint Institute for Food Safety and Applied Nutrition (JIFSAN)  
5201 Campus Drive, 2134 Patapsco Building, College Park, MD 20742

### Course Objectives

1. Reproduce selected filth methods
  - a. AOAC 972.40 Light Filth in Pepper
  - b. AOAC 964.23A(a) Filth in Fig and Fruit Paste
2. Practice spotting and identifying some common insects of stored food
3. Analyze samples for insect and hair contaminants using light filth flotation techniques and microscopic examination to count and identify contaminants.
4. Apply data in a standard worksheet (provided at the training)

### Schedule

Each day starts at 8 am and ends at 5 pm (except Friday, 2 pm)

#### **Monday:** Introduction and overview

- 8:00 am – 8:30 am  
Welcome and introductions (George, Monica, John, Mickey and trainees)
- 8:30 am – 8:40 am  
Introduction: objectives of this workshop (John and Mickey)
- 8:40 am – 9:40 am  
Lecture: Comprehensive review of elements of the light filth flotation technique (John)
- 9:40 am – 9:55 am  
Overview of the heavy filth analysis methods (John)
- 9:55 am – 10:10 am  
Break
- 10:10 am – 11:10 am  
Preparation of insect and rodent material spikes (John),  
(Demonstration of how to cut spikes & student lab exercise cutting elytral square and rodent hair spikes)
- 11:10 am – 11:40 am  
Overview of materials, steps and tricks (Mickey)
- 11:40 am – 12:40 pm  
Lunch
- 12:40 pm- 1:40 pm  
Demonstration of the colored oil method in classroom (Mickey)
- 1:40 pm – 3:40 pm

Demonstration and lab exercises of wet sieving, magnetic stirring, trap flask and flotation techniques (Mickey)

**Tuesday:** Recognizing and counting insect fragments & black pepper analysis

- 8:00 am - 9:00 am  
Lecture: Recognizing insect fragment diagnostic characters and rules of counting (John)
- 9:00 am - 9:30 am  
Classroom demonstration of extraction paper examination (John)
- 9:30 am - 9:45 am  
Break
- 9:45 am - 10:45 am  
Observation of insect fragments (beetle larvae and adults; moth larvae and adults) (George and Monica)
- 10:45 am - 11:45 pm  
Lecture: Reporting analytical results on worksheets (AOAC 970.66) (George)
- 11:45 pm - 12:45 pm  
Lunch
- 12:45 pm - 1:15 pm  
Lecture: Review black pepper method (John)
- 1:15 pm - 5:00 pm  
Lab practice: student analysis of black pepper: sample preparation, extraction, plate preparation, plate reading - counting insect fragments and hairs, reporting data on worksheets (John)

**Wednesday:** Insect identification, rodent hairs and continuation of black pepper analysis

- 8:00 am – 8:15 am  
Q&A
- 8:15 am – 9:15 am  
Lecture: Identification of some common insects of stored food and glossary of terms (Mickey)
- 9:15 am – 10:15 am  
Lecture: How to use glossary and key (red flour beetle, weevil, Indian meal moth) (Monica)
- 10:15 am – 10:30 am  
Break
- 10:30 am – 11:30 am  
Demonstration of rodent hair morphology: recognizing hair & fiber and filaments in a filth sample (Mickey)
- 11:30 am – 12:30 pm

Lunch

- 12:30 pm – 5:00 pm  
Lab exercises: black pepper analysis and extraction paper exams (continued)  
(John)

**Thursday:** Basics of the fruit paste method and insect fragment identification

- 8:00 am – 8:15 am  
Q&A
- 8:15 am – 8:30 am  
Lecture: identification of insect fragments (John)
- 8:30 am - 9:30 am  
Classroom demonstration: Identification of insect fragments (Mickey)
- 9:30 am - 9:45 am  
Break
- 9:45 am - 11:00 am  
Classroom demonstration: Preparation of fruit pastes (tamarind paste) (Mickey)
- 11:00 am - 12:00 am  
Lunch
- 12:00 pm - 5:00 pm  
Lab practice: Preparation of product, extraction, preparation of plate, plate reading, identification of fragments, data reporting (Mickey)

**Friday:** Finish up

- 8:00 am – 8:15 am  
Q&A
- 8:15 am – 9:15 am  
Classroom practice: Fill out a report template (George)
- 9:15 am – 10:15 am  
Discussion: Regulations, import alerts and DALs (George)
- 10:15 am – 10:30 am  
Break
- 10:30 am – 10:45 am  
Lecture: FDA checklist and lab manual (Heather)
- 10:45 am – 11:45 am  
Lecture: solvent substitutions and documentation (George)
- 11:45 am – 12:45 pm  
Lunch
- 12:45 pm – 1:00 pm  
Course evaluation on Survey Monkey (JoAnn)
- 1:00 pm – 2:00 pm  
Review of the filth analysis workshop (JoAnn)

## Instructor cadre

### **John Gecan**

John worked in FDA's Microanalytical Branch for 36 years where he developed and validated 15 AOAC methods; and authored 29 research and regulatory papers. Retired as chief of the Microanalytical Branch in 2000, his post retirement activities include consulting and training for industry and the federal government.

### **Mickey Anderson**

Mickey has a Master of Science in Entomology from the University of Georgia and retired as an Entomologist/Filth Sanitation Microanalytical Expert from the FDA lab in Atlanta, Georgia. He also worked in FDA HQ. He is experienced in teaching various aspects of laboratory filth extraction techniques and identification of filth elements.

### **George Ziobro**

A Research Chemist at the FDA's Center for Food Safety and Applied Nutrition, in College Park MD, George is the lead reviewer for regulatory cases involving filth contamination, agency expert on botanical nomenclature and the use of plants for dietary supplements and curator for the FDA's food and dietary supplements herbarium.

### **Monica Pava-Ripoll**

Monica is a Staff Fellow Research Entomologist at the FDA's Center for Food Safety and Applied Nutrition, in College Park MD, leading research projects on the detection of insects in food products, the frequency of bacterial foodborne pathogens carried by insects, and the vertical transmission of foodborne pathogenic bacteria in synanthropic filth flies.

### **Heather Hawk**

A Chemist at the FDA's Office of Regulatory Affairs (ORA) in Rockville MD since 2015, Heather started her career in the private sector before joining the FDA in the Arkansas Regional Laboratory in 2002.

### **CAPT JoAnn Hittie**

A chemist, pharmacist and epidemiologist by training, JoAnn has experience in the United States and Europe performing chemistry and IND regulatory work with American and foreign companies, as well as the FDA. JoAnn is a Consumer Safety Officer, Training Officer in Chemistry at the FDA's Office of Regulatory Affairs in Rockville, MD.

### **Amy Barnes**

Amy is a chemist who has worked in the Filth area since beginning her career with the FDA at Arkansas Regional Lab in 2000. She has served in position as Filth Team Leader since 2005 and is also a member of FDA's Filth Expert Panel as well as the FDA Filth QA Workgroup.