



BMT/11/25

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

**WORKING GROUP ON BIOCHEMICAL AND MOLECULAR
TECHNIQUES AND DNA PROFILING IN PARTICULAR**

Eleventh Session
Madrid, September 16 to 18, 2008

ISO TC34 SC16
(A CENTRAL BODY FOR INTERNATIONAL HARMONIZATION AND
STANDARDIZATION OF BIOMOLECULAR METHODS APPLIED TO
FOOD AND SEEDS)

Document prepared by experts from the United States of America

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ISO TC34 SC16

Developing a five year plan

Mike Sussman, Ph.D.
**Director, United States Department of Agriculture, Agricultural
Marketing Service, Field Laboratory Services**
Gastonia, North Carolina, USA
michael.sussman@usda.gov


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What ISO Standards Do?

- ISO standards:
 - make the development of services more efficient
 - facilitate trade between countries and make it fairer
 - provide governments with a technical base for conformity assessment
 - share technological advances and good management practice
 - disseminate innovation
 - safeguard consumers, and users of services
 - make life simpler by providing solutions to common problems


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ISO TC 34




- This Technical Committee addresses standardization in the field of human and animal foodstuffs as well as animal and vegetable propagation materials, in particular terminology, sampling, methods of test and analysis, product specifications and requirements for packaging, storage and transportation.
- In 2005, a need was seen to provide a central body for international harmonization and standardization of bio-molecular methods applied to foods and seeds.
- A new subcommittee named TC34/SC16 was established by the ISO Technical Management Board in April, 2008 for this purpose.

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ISO TC34/SC16

- Name: Horizontal methods for the detection of molecular biomarkers in: foods, seeds and propagules of food crops, commodity food crops, fruits, vegetables and derived foods
- Host: United States
- Secretariat: American National Standards Institute
- Secretary: Richard Cantrill, Technical Director of the American Oil Chemist Society



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SC16 Leadership

- In response to the establishment of the new SC, a new US Technical Advisory Group (TAG) for ISO/TC 34/SC 16 was formed.
 - Ms. Gina Clapper, AOCS Technical Services Division, was appointed as its secretary.
 - During its first meeting in Des Moines, Iowa, July 23, 2008, the TAG chose Dr. Raymond Shillito, Regional External Technical Director for Bayer CropScience, as its Chairperson.
- TAG members nominated Dr. Michael Sussman, Director of United States Department of Agriculture, Agricultural Marketing Service, Field Laboratory Services, to be the Chairperson for the SC16.
- Other national bodies are also expected to establish TAGs.

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Participants

- Current member bodies: Argentina, Canada, the Czech Republic, France, Germany, Japan, Morocco, Poland, Spain, Switzerland, Thailand, The Netherlands, United Kingdom and United States




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SC 16 Scope

- Standardization of biomolecular testing methods applied to: foods; seeds and propagules of food crops; commodity crops; fruits; vegetables and derived foods.
- The proposed scope includes methods that test nucleic acids, e.g., polymerase chain reaction (PCR) detection, real time PCR detection, genotypic analysis and sequencing, or protein e.g. enzyme linked immunosorbent assay (ELISA) and other suitable methods.
- The SC is envisioned as being horizontal in scope.




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Scope (continued)

- The scope may include detection of gene technology derived products, variety identification and detection of pathogens in foods; seeds and propagules of food crops; commodity crops; fruits; vegetables and derived foods.




- The scope does not include food microbiological methods. It is expected that the SC will liaise with other SC's where similar technologies (e.g. PCR and other molecular methodologies) are involved.

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SC 16 Structure

- SC16 will assume the work of ISO/TC 34/WG7 "Detection of genetically modified organisms and derived products"
 - This will be **WG 1**
- Two additional areas of work are proposed:
 - **WG 2:** Varietal identification
 - **WG 3:** Detection of potential pathogens of seeds and plants



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Working Group 1: Detection of specific molecular biomarkers in seeds and food plants and Foodstuffs

- The five ISO standards already published by ISO/TC 34/WG7 require systematic review at five year intervals. These are:
 - ISO 21572, Foodstuffs - Detection of genetically modified organisms and derived products - Protein based methods
 - ISO 21569, Foodstuffs — Methods of analysis for the detection of genetically modified organisms and derived products — Qualitative nucleic acid based methods;
 - ISO 21570, Foodstuffs — Methods of analysis for the detection of genetically modified organisms and derived products — Quantitative nucleic acid based methods;
 - ISO 21571, Foodstuffs – Methods of analysis for the detection of genetically modified organisms and derived products – Nucleic acid extraction (ISO 21571:2005)
 - ISO 24276 "Foodstuffs - Methods of analysis for the detection of genetically modified organisms and derived products - General requirements and definitions.

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Working Group 1: Detection of specific molecular biomarkers in seeds and food plants and Foodstuffs

- SC16 WG 1 will also work on the implementation of ISO Technical Specification 21098, Foodstuffs -- Nucleic acid based methods of analysis of genetically modified organisms and derived products -- Information to be supplied and procedure for the addition of methods to ISO 21569, ISO 21570 or ISO 21571
 - This technical specification assesses the concordance of proposed new standard methods with WG 1 standards.
- There is also the expectation that new methods and technologies will be introduced to WG 1.




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WG 2: Varietal identification


- WG 2 is envisioned as using biomolecular markers to determine organism identity. Such work may include:
 - 1) Determination of performance and quality criteria for the use of microsatellites, SNPs and other DNA-and protein-based molecular markers for cultivar identification and germplasm screening.
 - 2) Determination and description of standard marker sets for regional and quality criteria for crop plants, fruits and vegetables.
- Within the scope of the UPOV BMT there may be a potential liaison with ISO TC34/ SC16 in this work area. This liaison will be welcomed.
- ISO TC 34/SC16 can also provide an additional international forum focused on harmonizing criteria and methods used for genotyping and marker assisted breeding.
- When necessary ISO standards can also provide for the protection of proprietary information.



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WG 3: Detection of potential pathogens of seeds and plants



papaya ringspot disease

- Rapid and accurate biomolecular detection methods for detecting and identifying plant pathogens early in crop production are valuable for making disease management decisions especially when plant pathogens are difficult to detect using morphological criteria.
- With large amounts of genomic and biometrological information on plant pathogens accumulating in databases it is likely that numerous new plant pathogen detection methods will appear in the future.
- As new methods are developed this group can provide minimum criteria for accuracy, sensitivity, selectivity and reproducibility.
- SC 16 will provide a forum and support for discussion for standardization of tests, criteria for laboratories that perform the tests, interoperability for governments that regulate the transfer of healthy and diseased crops and potential benefits for producers.



citrus greening

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Contacts and Meetings

- Contacts for more information
 - richard.cantrill@aocs.org
 - ray.shillito@bayercropscience.com
 - michael.sussman@usda.gov
- First Plenary Meeting of TC34/ SC16
Chicago, IL, USA
November 11-13, 2008



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- . The members of the ISO TC 34/SC 16 organizational committee very much appreciate Dr. Kitisri Sukakpinda's assistance and wish to thank her for volunteering to provide this presentation in our absence.*
- . Please feel free to contact us directly with any questions or comments.*

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