Incorporating Risk Analysis Into Food Safety Control System

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2. Overview of KFDA’s Risk Assessment
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Ingredients from China!!

Increasing Consumer Demands for Food Safety

Environments

Food Control System in KFDA

APPENDIX 17

Food Control System – Key points

Risk-based Regulatory Frameworks

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<td>Trunks</td>
<td>- Food code</td>
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<td>- Food additive code</td>
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<td>- Food sanitation act</td>
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Risk-based Regulations and Standards

- Article 15, Food sanitation act

- Definition and description
  - Safety provisions
    - Contaminants
    - Microbial levels
    - Sampling and analysis requirements
  - Composition of food
    - Additives
    - Nutritional
    - Maximum fat, salt and sugar levels
    - Quality
  - Production, manufacture or preparation of food
  - Packaging, storage, or handling of food and information about food, including labelling

Risk Analysis provides the information and evidence food needed for effective decision-making, contributing to better food safety outcomes and improvement in public health.

NIFDS : Food Safety Evaluation Department

Supporting KFDA's policy decision based on science

### NIFDS: Food Safety Evaluation Department

**Organization chart** (53 scientists)

- **Food Safety Evaluation Department Leader**: Dr. Kwangho Lee
- **Food Chemical Residues**: Dr. Kiumin Kwon
- **Food Contaminants**: Dr. Mehyot Kim
- **Food Microbiology**: Dr. Ingyun Hwang
- **Food Additives & Packages**: Dr. Sahee Kim
- **Nutrition & Functional Food Research**: Dr. Jayoung Jeong
- **Scientific Food Investigation**: Dr. Heeochang Yoon
- **Risk Analysis & Research**: Dr. Guysik Lee
- **Health Effects Analysis**

**Projects**
- number: 133
- budget: $23 million

### Objectives of Risk Assessment

- Establishing Standards: appropriate protection level (food contaminants et al.)
- Maximize reduction in risks through evaluating RMO
- Priority setting: Implementing policies and providing management plans.
- Reducing risk perception differences through risk communication

### Risk Assessment

- Problem Identification
- Hazard Identification
- Hazard Characterization
- Exposure Assessment
- Risk Characterization
- Risk Management

### Risk Assessment during the past 5 years (2006-2010)

- Chemical contaminants (food consumption risk)

### Activities on going in the area of Chemicals in Food

- Establishing analytical methods for:
  - Pesticides, Vet. Drug, and Food additives upon setting MRLs or Use levels
  - non-approved agri. chemicals residues,
  - contaminants (mycotoxins, environmental hazardous substances)
  - migrants from food packaging materials

- Residues monitoring in Foods:
  - Pesticides, Vet. Drug, contaminants, migrants

- Survey on dietary intake of:
  - Food additives by Korean population: tar colorant, preservatives, anti-oxidants
  - Total Diet Study (pesticides, contaminants)
Other Activities

- The standardization and specification of ginseng-derived products
- Reduction of trans fat, sugar and sodium contents in processed foods
- Establishment of the detection methods for the GM events approval requested
- Study on human bio monitoring of hazardous substances (Perfluorocarboxylates, PBDEs (polybrominated diphenyl ethers), Phthalates, Bisphenol A)
- Improving risk assessment methodology
- Harmonization of Scientific Evidences
  - Developing Guideline/Handbook/Manual

Where KFDA’s RA is Going:
Perspectives in Risk Assessment

Food + Health Functional Food + Herbal Medicine + ......?

Cadmium monitoring from various media

Identify Exposure route /sources?
Survey on high risk group?
Combined exposure?

Providing Regulatory information!
Science-based Smart Regulation

Decision making tool: Chemical Ranking and Scoring

Relative ranking for chemicals is assigned to determine which chemicals need immediate research or monitoring

R. A. Paradigm Shifted: measuring Exposure

Focus on Media -> Focus on Receptor

Food Monitoring /Surveillance -> Total Diet Studies -> Integrated Exposure Survey

Provide more coherent inputs to the decision-making process

Aggregated exposure Assessment

Forward dosemetry approaches
External exposure
Internal exposure
Bio monitoring

Reverse dosemetry approaches (modeling, tool kit)
Functional foods
Medicine
Cosmetics

Setting the HbGVs of Cadmium, Lead
comparative analysis of external exposure and internal exposure

KFDa Project(2011)
Hazardous substances and Disease

Low-dose chemical exposure to general population in everyday life recognized as new hazard

**Risk Workshop (2011.05)**

**Major groups of hazardous substances**

- Heavy metals (As, Pb, Cd, Hg...)
- Man-made chemicals (POPs, Bisphenol A, Phthalates...)

**Chronic disease**

- Alzheimer
- Child obesity
- Insulin resistance diabetes
- Diabetes

Examine correlations between hazardous chemical exposures and demographic characteristics, dietary habits, health condition, etc

Provide a specific measure tailored to meet individual disease control

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**R&D Strategies for Risk Management of Nanoparticles in Foods, Cosmetics, and Drug**

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<tr>
<th>Risk management</th>
<th>11</th>
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<td>Development of strategies for safety management in nanoparticle lifecycle</td>
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<td>Develop methods to determine a characteristic of nanoparticles in foods, cosmetics, and drugs</td>
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<td>Establish a framework for managing risks and exposure of nanoparticles in foods, cosmetics, and drugs</td>
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**Technological assessment**

- Establishment of international toxicology test guidelines
- Development of toxicological basic methodology & toxic mechanism

**Technical information for risk assessment**

- Hazard characterization of nanoparticles
- Information of the toxicological basic methodology & toxic mechanism
- Development and use of nanoparticles developed using new technologies

**International cooperation & risk communication**

- Strengthen cooperation between regulatory agencies for protection of public health, food, and agriculture
- Establishment of risk communication for nanoparticles

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**Establishing International Network**

- **BfR** (German Federal Institute for Risk Assessment)
- **FSANZ** (Food Standards Australia New Zealand)
- **Korea Food & Drug Administration (KFDA)**
- **EFSA** (European Food Safety Authority)

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**Thank you!**