Handheld Devices
Risk Assessment in Consumer Hands
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FOOD SAFETY

SCIENTIFIC AND VISUAL COMMUNICATION

FOOD ANALYSIS STRATEGIES
TECHNOLOGY APPLICATIONS
FOOD FRAUD
FOOD ALLERGENS & GLUTEN
GMO

ALLERGEN MANAGEMENT
RISK ASSESSMENT
RISK & CRISIS MANAGEMENT
REGULATORY SUPPORT

ASSIST TECHNOLOGY PROVIDERS, FOOD COMPANIES, TESTING LABORATORIES
What is out there?

QUESTION
Which consumer detectors for food have you seen?
Active vs Passive

Active use of Devices:
Consumers need to measure

Passive use of Devices:
No consumer interaction is needed

Devices

- Melamine Detector
- Nutritional Value Devices
- Food Allergen/Gluten Detectors
- Freshness Detectors
- Pathogen Detectors
- Contaminants Sniffer
- Cannabis Analyzer
- Pesticide detector
Essential Needs to protect ones' health
(or family’s health)

Good to know information (diet, well being)

Passive devices always better but active devices are used when health is at risk
Consumer Devices for Detection of Gluten and Allergens

Currently at least seven devices are either on sale or launch is expected within the next 18 months.
Do the devices work?
..or to use our terminology: have they been validated?

Forming a stakeholder panel:
- Device manufacturer
- Regulators
- Food manufacturing companies
- assay providers
- Patient Groups

Key Questions

- Are these Devices Validated, and if yes, how?
  - Laboratory validation (performance)
  - Consumer (untrained panel) validation
  - Matrices
- Which information is provided for consumers?
  - How to sample
    - Representative sampling vs random sampling
    - What to test?
- What does the kit measure
  - Analyte
- Limitation of the device
  - Unsuitable matrices
  - Cross-specificities
- Consumer Support
Stakeholders' Guidance Document for Consumer Analytical Devices with a Focus on Gluten and Food Allergens

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the device or method is fit-for-purpose. This guideline will significantly contribute to the consumer's decision-making process, and consequently, contribute to the consumer's safety and quality of life.

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Are there validated Consumer Devices?

Research Note
Evaluation of a Handheld Gluten Detection Device

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ABSTRACT
A portable handheld gluten detection device, the Nina sensor, is now available for consumers wishing to determine if gluten is present in food. By U.S. regulation, gluten-free foods should contain <20 ppm of gluten. To test the gluten-free foods, small 300 mg samples of the food were prepared and then a few drops of the sample were applied on a weight for weight basis with gluten levels of 0, 5, 10, 20, 30, 40, and 100 ppm before processing or preparation. Unprocessed and processed foods were tested with the handheld gluten sensor and by two gluten-specific enzyme-linked immunosorbent assays (ELISAs) on the basis of the 85 and 150 monoclonal antibodies, respectively. The gluten-specific binding of the gluten detection device increased in all food types at the 20 ppm addition level, failing to detect gluten in only 1% (1/100) of the samples. At the 150 ppm addition level, the portable gluten detection device failed to detect gluten in one type of pasta, but to detect gluten at all other levels at least 97.7% (7/72) of the time. The device was able to detect gluten at the 85 ppm addition level in all food types at least 97.7% of the time. The gluten-free foods, the gluten detection device performed reliably in the detection of gluten in foods having <20 ppm of added gluten with only 1% (1/100) of the samples, if results of the one type of pasta are included. The device worked with greater reliability as the gluten levels in the foods increased.

Keywords: Celiac disease; Consumer Detection; Gluten; Nina Sensor

Are These Devices Useful?
Open Questions

- Do we need to have a regulatory framework to ensure these devices are validated?
- How are consumer data protected?
- Can consumer help notoriously understaffed competent authorities uncover food safety issues?
- Can manufacturer benefit from having consumer as part of the control?
- Liability of device manufacturers in case of inappropriate brand damage?
For all of us it will be a....

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