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# LABORATORY COMPETENCY ENHANCEMENT PROGRAM

## Training on the Determination of Gluten in Gluten-Free Foods



The Central  
Laboratories of the Oman  
Food Safety & Quality Center  
Muscat, Oman

20 – 21  
AUGUST  
2024

(8:00 AM – 3:00 PM)

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STAY CONNECTED  
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# PREAMBLE

Celiac disease (CD) is an immune mediated disease, triggered in genetically susceptible individuals by the ingestion of gluten. Individuals with CD and dermatitis herpetiformis, a related skin condition, exhibit adverse reactions to the specific proteins of wheat, rye, and barley which are categorized as gluten. Gluten is a generic name given to storage proteins in wheat, barley, rye, and other closely related cereal grains. Prolamins are the aqueous alcohol soluble fraction of gluten isolated from these grains and their hybridized strains (i.e., triticale). For people with Celiac Disease, these proteins trigger an inflammatory reaction in the absorptive surface of the small intestine resulting in malabsorption of protein, fat, carbohydrate, fat-soluble vitamins, folate, and minerals, especially iron and calcium.

Celiac Disease is a lifelong condition, and if it is not diagnosed early and treated with a strict gluten-free diet, it may lead to serious health implications: prolonged exposure to gluten for individuals with Celiac Disease results in the deterioration, over time, of the cell lining of the small intestine, which has been associated with other complications, including osteoporosis, lymphoma, and other types of malignancies, infertility in both men and women and a number of autoimmune diseases including insulin dependent diabetes in children .

The prevalence of Celiac Disease is estimated to be 1 % of the World Population , but is expected to be higher in some regions of the world such as the Arab region.

The Global Food Regulatory Science Society (GForSS), host of the Arab Section of AOAC INTERNATIONAL, is collaborating with key partners and stakeholders in the Arab region to launch the Arab Food Allergen Management Initiative, aiming to enhance the way priority allergens and gluten sources are managed as part of food production practices in the Arab region. A key component of this initiative includes harmonization of laboratory methods and enhancement of competencies in performing testing of gluten sources in gluten free foods or food products that may be targeted by Celiac individuals.

# TESTING OF GLUTEN MARKERS

## in Gluten Free Foods

The Codex Alimentarius Commission (Codex) adopted the standard CXS 118-1979, defining Gluten Free Food as food containing less than 20 ppm of proteins derived from wheat, barley, rye and/or any of their hybridized strains. Where required, these foods must undergo rigorous testing to ensure their safety and compliance, thereby protecting the well-being of the celiac community. Moreover, in its standard CXS 234-1999 on "Recommended Methods of Analysis and Sampling", Codex specifies the use of Enzyme-Linked Immunoassay R5 Mendez (ELISA) methods for the determination of gluten in "gluten-free foods".

GForSS and the Arab Section of AOAC INTERNATIONAL are partnering with the Oman Food Safety & Quality Center (OFSQC) to launch a training initiative on the *"Methods of Determination of Gluten in Gluten Free Foods"*.

This training aims to equip participants with the essential skills and knowledge to effectively implement and perform gluten testing using ELISA methods referenced in the Codex standard. Participants will gain hands-on experience, learn best practices for achieving accurate and reliable test results, and understand the regulatory standards for gluten-free labeling.

This training is carried out in collaboration with the Gulf Cooperation Council (GCC) Standardization Organization (GSO) and the Arab Industrial Development, Standardization and Mining Organization (AIDSMO).

This training will be delivered by experts from Foodregsci Europe and R-Biopharm AG.

# OBJECTIVES

- ◆ To provide participants with hands-on experience in implementing and performing gluten testing using ELISA methods.
- ◆ To introduce participants to best practices for achieving accurate and reliable test results.
- ◆ To strengthen participants' understanding of the regulatory standards for gluten-free labeling and overall gluten management.

# ANALYTICAL METHOD

The method to be used for gluten detection is the RIDASCREEN® Gliadin (Art. No. R7001 - R-Biopharm AG), which is based on a quantitative Sandwich ELISA able to detect and quantify gluten from Wheat, Rye, and Barley in processed and unprocessed matrices (32.1.44 AOAC Official Method 2012.01). This method detects Gliadin as a measure of gluten in food by enzyme-linked immunoassay R5 Mendez (ELISA) method, following a sample extraction assisted by a Cocktail (patented) solution.



# PROGRAM

20 August 2024 • 8:00-15:00

# DAY 1

8:00-8:30

- Introductory Remarks by the Host Organization: Oman Food Safety & Quality Center
- Introductory Remarks by the Training Team

8:30-9:00

Introduction to Food Allergens and Gluten Management – A Regulatory Perspective

- *Prof. Samuel Godefroy, Laval University / GForSS*

9:00-9:30

Performance of ELISA-based Analytical Methods supporting Compliance with Gluten Free Regulations

- *Dr. Stefan Schmidt, Product Manager: Allergens, R-Biopharm*

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Rapid Methods for Gluten testing: Part 1

10:00-13:00

- **R7001 RIDASCREEN® Gliadin Test-Kit Introduction**
  - Intended Use and General Information
  - Introduction of the Test-Kit Components
  - Introduction of Sample Preparation and Test Procedure
- **Sample Extraction**
- *R-Biopharm & Foodregsci Europe training teams*

13:00-14:00

Q & A Session on Sample Extraction

Discussion about Hands-on Training Tasks for Day 2

- *R-Biopharm & Foodregsci Europe training teams*

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8:00-9:00 Summary about Day 1 Activities / Introduction to Day 2

## Rapid Methods for Gluten Testing: Part 2

9:00-11:30

- Introduction to ELISA Procedure Implementation
- Analysis of Sample Extracts using RIDASCREEN<sup>®</sup> Gliadin
  - *R-Biopharm & Foodregsci Europe training teams*

11:30 - 12:00 HEALTH BREAK

## Result Calculation & Interpretation

12:00-13:00 Q & A Session on ELISA Implementation

- *R-Biopharm & Foodregsci Europe training teams*

13:00-14:00 Closing Ceremony and Certificate Distribution

14:00 - 15:00 LUNCH BREAK