



Analytical and Metrological Laboratory Services



Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, A.C.

ANALYTICAL AND METROLOGICAL LABORATORY SERVICES



Background

The Analytical and Metrological Services Unit (USAM) at CIATEJ provides services to the food and agriculture industry in the region and designs comprehensive specialized services focused on food quality and safety to increase the competitiveness of the food and agriculture industry.

Mission

We are a laboratory that provides specialized analytical services thanks to our qualified staff, cutting-edge equipment and development of innovative methods to meet the needs of customers in a reliable and timely manner.

Vision

To be a laboratory of reference for the food and agriculture industry known for its accredited tests and national recognition for the quality and reliability of its services.



Spectroscopy

Through atomic absorption (AA), Inductively Coupled Plasma (ICP) or Mass Spectrometry (MS) methods using inductively coupled plasma mass spectrometry (ICP- MS), we can identify and quantify the content of heavy metals at the macro and micro trace levels in products made for human consumption.

We are the only laboratory outside the United States to be recognized by the government of California as competent to carry out the analysis of lead content in candies with chili imported from Mexico to said country, as well as in raw and packaging materials. Analytical services offered are:

- Waters (NOM-127-SSA1-1994)
- Foodstuffs (FDA and NOM-051)
- Raw materials and Plastics (NOM-015/1-SCFI-SSA-1994)
- Ceramic articles (NOM-231-SSA1-2002)
- Soils and rocks (EPA 6010B (ICP)/EPA3050) Wastewater (NOM-001-SEMARNAT-1996, NOM-002-SEMARNAT-1996 and NOM-003-SEMARNAT-1997).



ANALYTICAL AND METROLOGICAL LABORATORY SERVICES

Physicochemical

We have analytical methods that allow you to know if water is fit for human consumption according to NOM-127-SSA1-1996. In addition we can characterize food contents for either the development of products for sale to the public or to establish the parameters required for the development of nutritional tables (NOM-051 or FDA).

- Nutritional analysis
- Soluble and insoluble fiber
- Dietary fiber
- Foreign matter
- Activity of Water (Aw)
- Vitamín C
- Aflatoxins
- Nutritional tables NOM-051-SCFI/SSA1-2010 and FDA
- Nutritional labeling (Icons)

Moreover, among the needs of our customers is the need to comply with wastewater regulations (NOM-001-SEMARNAT-1996, NOM-002-SE-MARNAT-1996 and NOM-003-SEMAR-NAT-1997).



Metrology

Calibration is an essential requirement of ensuring the reliability of the measurement and control of production processes. We have the facilities and equipment to perform calibrations of measuring equipment. Calibration services offered include:

- Mass Scales (EMA M-130)
- Volume Flasks and Pipette's (EMA V-52)
- Temperature Thermometers`
- Pressure Pressure Gauges



Chromatography

Through use of this technique we can detect agricultural pesticide residues, regulated at the international level, down to levels below the maximum allowable limits in different food matrices of the primary agriculture or water sectors. Among others, we can perform tests mentioned in the drinking water standard NOM-127-SSA1-1994. The services offered by the unit include:

- Analysis of multi-class residual pesticides
- Amino acids
- Phthalates
- Glycosides
- Aflatoxins (B1, B2, G1 and G2)
- Acrylamide
- Vitamins
- Fatty acids/Omegas
- Trans fats
- Cholesterol
- Carbohydrates profile



ANALYTICAL AND METROLOGICAL LABORATORY SERVICES

Microbiology

Via classical microbiology we identify quality indicator microorganisms and indicators of fecal contamination in water and food using methodologies compliant with regulations (NOM, FDA, USDA), and via molecular microbiology we identify pathogens such as:

- Salmonella spp •
- Staphylococcus aureus
- Listería monocytogenes
- Vibrio cholerae
- Escherichia coli E. coli O157:H7
- Fungi and yeasts



Molecular Methods

Via molecular methods we offer results with greater sensitivity and specificity, in short turnaround times and with pathogen identification. We can also detect genetic alterations in grains and their derivatives generated by human manipulation by using molecular biology techniques such as PCR and Real Time PCR.

- Detection, identification and guantification • of Genetically Modified Organisms in corn, soybeans and wheat
- Identification of bovine DNA

Development of Methods

We can develop and validate qualitative and quantitative methods of detecting specific contaminants of any food product, which can increase the competitiveness of the regional food industry. All developments are in the areas of chromatography, spectroscopy, physiochemistry, microbiology and molecular methods.



Laser Spectroscopy

In the optical-spectroscopy laboratory, we develop nondestructive and real-time methods through the application of laser-induced fluorescence (LIF) and Raman spectroscopy that can be applied to the:

- Characterization of raw material
- Detection of adulteration of food and beveraaes
- Comparative analysis of samples for quality control
- Analysis of organic and inorganic samples •



ALSO WE ARE

Research, Development and Innovation

At CIATEJ we generate cutting-edge knowledge through the innovative application of biotechnology.

We protect knowledge through patents, trade secrets and/or copyrights.

We guarantee the development of Research, Development and Innovation (R+D+I) projects according to national and international quality standards ISO 9001-2008, COPANT/ISO 9001-2008/NMX-CC-9001-IMNC 2008 and regulations such as food safety.

We seek to create products, processes and services supported by market needs.

We offer competitive advantages for domestic and international markets.

We establish strategic partnerships and arrangements in order to take advantage of collaborative work.

Human Resources Training

High-level Human Resources Training is essential for the development of knowledge societies. That is why we train human capital with a superior level of scientific and technological knowledge, capable of generating, innovating, implementing and conveying up-to-date, academically and socially relevant knowledge, by developing quality graduate programs such as the Continuing Education Program (el Programa de Educación Continua) and the Early-Introduction Research Program (el Programa de Iniciación Temprana a la Investigación).



ACCREDITATIONS AND CERTIFICATIONS

In Mexico, the Mexican Accreditation Entity (Entidad Mexicana de Acreditación, A.C./ EMA) and the Federal Commission for Protection Against Sanitary Risks (COFEPRIS) verify laboratory competence under the Official Mexican Standard NMX-EC-17025-IMNC-2006/ISO 17025:2005 criteria to ensure that the recipient of the services is confident that the measurements were done correctly according to national and international standards.

EMA M-130 Calibration Laboratory: Mass

• Calibration of weighing instruments from 5 g to 50 kg.

EMA V-52 Calibration Laboratory: Volume

 Calibration of volumetric containers from 20 μL to 4 Lt.

EMA SA-0066-012/12 Agricultural health

- Detection of Genetically Modified Organisms (GMO) maize via PCR.
- Detection, identification and quantification of Genetically Modified Organisms (GMOs) in corn, soybeans and wheat via Real Time PCR.

EMA A- 0500-045 / 13 Foodstuffs

- Determination of lead in finished products via ICP-MS
- Determination of lead in chili pepper samples via ICP-MS
- Detection of total metals via atomic emission

TA-69-13 COFEPRIS

Authorized third-party laboratory:

- Microbiological methods: NOM-110-SSA1-1994, NOM-114-SSA1-1994, CCA-YAC-M-004
- Organochlorine pesticides in water: EPA Method 8081

Similarly, the Mexican Institute of Standardization and Certification (Instituto Mexicano de Normalización y Certificación A.C.) certifies that the laboratory meets the guidelines of ISO 9001:2008.

More info at:

Guadalajara, Jalisco +52(33)33455200 Ext.1810 y 1821 Apodaca, Nuevo León +52(81)82155200 serviciosanaliticos@ciatej.mx





www.ciatej.mx/usam/



Northeast Campus Vía de la Innovación 404 Parque de Innovación e Investigación Tecnológica C.P. 66629 Apodaca, Nuevo León +52(81)82155200

Guadalajara Campus Av. Normalistas 800 Colinas de la Normal C.P. 44270 Guadalajara Jalisco +52(33)33455200

f Ciatej ¥@CIATEJ México