

CERTIFICATION SCHEME FOR FOOD MICRONUTRIENTS' ANALYST

(In accordance with ISO/IEC 17024: 2012)

1.0 CATEGORY OF CERTIFICATION:

CERTIFIED Food Micronutrients' Analyst (CFMA)

2.0 CERTIFIED FOOD MICRONUTRIENTS' ANALYST (CFMA)

2.1 SCOPE OF CERTIFICATION

Food Micronutrients' Analyst (FMA) candidates should be acquainted with the theory, principles, and applications of physio-chemical and instrumental techniques applicable to food micronutrient laboratory.

Food Micronutrients' Analyst (FMA) Certification is designed to demonstrate competency at the advanced technical level. It implies competence in the knowledge, skills and abilities required to perform the Core Duties of an advanced and skilled Food Micronutrients' Analyst.

2.2 PRE-REQUISITES

Education:

- 1) Higher National Diploma (HND) or Bachelor of Science (B. Sc.) Degree in Biochemistry, Chemistry, Food Science and Technology, Industrial Chemistry, Science Laboratory Technology, Nutrition and Dietetics, Microbiology or Pharmacy.
- 2) Master of Science (M. Sc.) or Doctor of Philosophy (Ph.D.) Degree in Biochemistry, Chemistry, Food Science and Technology, Industrial Chemistry, Nutrition and Dietetics, Microbiology or Pharmaceutical Chemistry/Analysis.

Work Experience

- 3) For (1) above, a minimum of two (2) year cognate experience in an analytical, water or food laboratory.
- 4) For (2) above, a minimum of one (1) year cognate experience in an analytical, water or food laboratory.

In addition, candidates shall:

- 5) Have successfully attended (*and obtained a Certificate of Completion of*) a training/course in the laboratory analysis of food micronutrients.
- 6) Be able to personally take measurements and readings from laboratory apparatus/equipment and work unaided within the laboratory without any attendant safety concerns.

An analytical laboratory means a public, third party/private, or quality control, or standards and regulatory, or research and tertiary institutions' laboratories.

2.3 JOB AND TASK DESCRIPTION

Persons certified as Food Micronutrients' Analyst are expected to have acceptable competency when carrying out applicable tasks that are required for an advanced and skilled Food Micronutrients Laboratory Analyst. These applicable tasks are called Core Duties and the certification test measures knowledge, skills and abilities (KSA) needed to perform these Core Duties.

2.3.1 Core Duties for Food Micronutrients' Analyst

- i) Prepares glassware, chemical reagents, and standard solutions
- ii) Performs basic quality control tests for reagents, standard solution, and generated laboratory data.
- iii) Maintains routine documentation and records data precisely and accurately.
- iv) Participates in the development of new Standard Operating Procedure (SOP) and techniques of analyses.
- v) Handles and prepares food micronutrient samples in accordance with approved laboratory procedures.
- vi) Performs laboratory analysis of food micronutrients using both basic and high precision laboratory equipment, e.g. HPLC, AAS-ICP, UV/Visible Spectrophotometer, etc.
- viii) Operates and routinely calibrates/validates and maintains laboratory equipment related to food micronutrients analysis including field laboratory equipment for in-situ testing.
- ix) Plans and reviews work performed, and data generated during analysis of food micronutrients
- x) Understands the applicable international and national standards and requirements in respect of food micronutrients.
- xi) Analyzes and interprets laboratory data and make appropriate recommendations regarding the quantities of micronutrients in food in accordance with international and national standards and regulations.
- xii) Provides reports on laboratory analysis/results and certificates of analysis, reviews data prepared by subordinates, reviews literature on technical issues and prepares corresponding reports.
- xiii) Maintains the quality assurance programme as required by International/National Standards and Regulations.

2.4 TEST CONTENT AREAS

An outline of Test Content Areas is listed below. Each content area is a Knowledge, Skill or Ability (KSA) needed to carry out the Core Duties which are enumerated above. To demonstrate acceptable competency, most of the Knowledge, Skills or Abilities are equally important and required to perform the Core Duties.

2.4.1 Test Content Areas for CFMA

Knowledge, Skill and Ability are as outlined below:

2.4.1.1 Knowledge of:

- i) Basic physical, chemical and unit operations regarding food samples for micronutrient analysis.

- ii) Sampling methods, sample preparation and preservation techniques of food samples for micronutrient analysis.
- iii) Laboratory chemicals, methods of preparation and standardization including the shelf life of prepared reagents and reference standards.
- iv) Laboratory hazards, safety precautions and procedures, chemical hygiene and used reagents disposal.
- v) Methods of cleaning and storing laboratory glassware.
- vi) Basic calculations regarding results of laboratory analysis.
- vii) Principles, uses and maintenance of basic and high precision laboratory equipment, e.g. HPLC, GC, AAS-ICP, UV/Visible Spectrophotometer, etc. for analysis of food micronutrients.
- viii) Routine calibration/validation and maintenance of basic and high precision laboratory equipment applicable to the analysis of food micronutrients.
- ix) Methods and techniques used in qualitative and quantitative laboratory analysis of micronutrients in food samples.
- x) Relevant and applicable up-to-date International/National standards and regulations regarding food micronutrients.
- xi) Proper laboratory management including good laboratory practices (GLP).

2.4.1.2 Skill to:

- i) Carry out analysis of micronutrients in food samples with minimal supervision.
- ii) Establish and maintain good interpersonal and effective working relationships with superiors and subordinates.

2.4.1.3 Ability to:

- i) Perform physicochemical analyses of food micronutrient samples.
- ii) Take measurements and readings from laboratory apparatus/equipment.
- iii) Evaluate, interpret, and apply the results of laboratory testing, including advanced laboratory calculations, use of statistical tools and relevant computer packages
- iv) Implement corrective action for analytical/instrumentation procedures.
- v) Reference current monographs, International, National standards and regulations regarding food micronutrients.

5.0 CODE OF CONDUCT

This Code of Ethics is a benchmark of the standards expected of IPAN-SoTLAN certificate holders and applicants to reaffirm the value of having an IPAN-SoTLAN certification. It is aimed at ensuring public confidence in the integrity and professional services of IPAN-SoTLAN certified persons while performing their duties.

All IPAN-SoTLAN certificate holders and applicants are expected to meet the following standards of professional conduct and ethics:

1. Conduct themselves in an honest, unbiased, responsible and independent manner while performing their professional duties.
2. Always act in the best interest of the public, and the ethics of the profession.
3. Maintain competency in their respective fields; strive to constantly improve their skills and offer only professional services for which they are competent to perform.
4. Inform each employer or client of any business interests or affiliations which might influence their judgment or impair their fairness.
5. Treat confidentially all information obtained from any present or former employer or client during professional and business dealings as required within the law.
6. Respect the intellectual property and contributions of others.

Also, in all dealings with IPAN-SoTLAN:

- i) Provide accurate and complete information and abide by IPAN-SoTLAN's Policies and Procedures, including this Code of Ethics, as may be reviewed from time to time;
- ii) Represent themselves honestly throughout the entire certification process.
- iii) Adhere to all examination rules/regulations and make no attempt to complete the examination dishonestly or to assist any other person in doing so.
- iv) Refrain from activities that may jeopardize the reputation of IPAN-SoTLAN or the integrity of its Certification programmes and cooperate during inquiry arising from any claimed infringement of this code of ethics.

A certified person who violates any provision of this Code of Ethics shall be subject to disciplinary action after due process which may result in suspension, or withdrawal of certification.

6.0 CRITERIA FOR INITIAL CERTIFICATION AND RECERTIFICATION

For initial CFMA certification, all applicants must apply and shall meet the required prerequisites, fulfill the necessary assessment/examination requirements. The validity of the certification shall be for a period of three (3) years and thereafter all certified persons must be re-certified. During the three years certification period, certified persons shall be required to annually maintain their certification (*Certification Maintenance Guideline, IPAN-SoTLAN-9.4.2-G-01, Rev. 2.0 of Feb. 15, 2023*) by submission of:

- (1) verifiable records/evidence of continuing professional development,
- (2) continuing satisfactory work performance, and
- (3) adhere to the prescribed code of conduct.

NOTE: In case of major changes in the technical areas (Knowledge, Skill and Ability) of this Certification Scheme, IPAN-SoTLAN shall require all certified persons to be re-certified before the end of the validity of their certification.

For re-certification before the expiration of three (3) years certification period; all such certified persons must apply for re-certification and shall:

- (1) meet the required prerequisites,
- (2) provide satisfactory evidence/records of continuing professional development and continuing satisfactory work experience within the period of initial certification,
- (3) fulfill the necessary re-certification assessment/examination requirements,
- (4) adhere to the prescribed code of conduct during the initial certification period, and
- (5) any other prescribed requirements for re-certification.

7.0 ASSESSMENT METHODS FOR INITIAL CERTIFICATION AND RECERTIFICATION

The assessment method for initial certification shall be:

- (1) the verification of the eligibility of all applicants,
- (2) the specific evaluation of prerequisite experiences of candidates as stated in their application forms,
- (3) confirmation that the claimed prerequisite experiences are related to required competent skills and abilities, and
- (4) a pass at the certification examination. Pass score for Food Micronutrients' Analyst certification examination is 60%.

For re-certification, the assessment method shall be:

- (1) through verification of a certified person's satisfactory job performance and records of continuing professional development to ensure continued compliance with the requirements of certification scheme during the periods of initial certification, and
- (2) a pass at re-certification examination. Pass score for Food Micronutrients' Analyst certification examination is 60%.

8.0 CRITERIA FOR SUSPENDING AND WITHDRAWING CERTIFICATION

The certification of certified persons shall be suspended or withdrawn as the case may be if they violate the certification code of conduct, fail or are unable to continually fulfill the competence/requirements of the certification scheme and/or have unsatisfactory surveillance reports.