3. Guidelines for the laboratory receiving the samples

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3.1. Scope

The aim of the Chapter is to provide a standardized approach for sample receiving operations in order to ensure high sample integrity and the validity of the analytical results. It provides guidance on laboratory sample reception and surveying, inspecting, documenting, and assigning laboratory tracking identifiers (IDs).

3.2. General considerations

Before the samples are received, communication between laboratory personnel and farm staff in the field allows the parties to coordinate activities, schedules, and sample reception. Sample reception and inspection activities need to be done in a timely manner to allow the laboratory and field personnel to resolve any problems (e.g., insufficient material collected, lack of field preservation, etc.) with the samples received by the laboratory as soon as is practical. Effective communications between field personnel and the laboratory not only facilitates problem resolution but also prevents unnecessary delays in the analytical process. The information

about the client, points of contact, number of samples, and types of analyses can be entered into the laboratory information management system (LIMS) to facilitate communication between the parties.

Laboratory sample reception occurs when a package containing samples is accepted. Sample inspection starts by checking the physical integrity of the package and samples, confirming the identity of the sample, confirming field preservation (if necessary), and recording and communicating the presence of hazardous materials. Laboratory sample tracking is a process that starts with logging in the sample and assigning a unique laboratory tracking identifier (numbers and/or letters) to be used to account for the sample through analyses, storage, and shipment.

3.3. Sample reception

All samples should be properly collected, identified and correctly transported from sites to the receiving laboratory in a transportation box or an individual biohazard plastic bag. Samples submitted for analysis must be accompanied by an Analysis Request Form, duly filled (Annex 3). Upon receipt of the sample, initial steps should be taken:

- Document the date and time of sample receipt.
- Assign an accession number to be used as sample identification in the laboratory.
- Verify that the sample identification on the Analysis Request Form matches the identification on the sample.
- Examine the sample visually to evaluate acceptability.
- Review the Analysis Request Form for suitability of the collected biological material.
- Determine the suitability, with respect to the test(s) ordered, to the transport conditions, including the following:
    - Transport medium or preservative for the sample,
    - Temperature of the sample upon receipt,
    - Length of time between sample collection and receipt,
    - Transport container integrity, i.e. no leaks or cracks.

3.4. Opening the package and inspection of the sample

After breaking the Official Seal (if present) and opening the package, the analyst removes and inspects the physical appearance of the sample. Using the laboratory's procedure, the analyst documents any discernible abnormalities, discrepancies, and problems such as the following:

- Discrepancies between the sample received from the sample described in the collection sheet.
- Broken paper seals without initials or date in the designated area.
- Records failing to describe the type of analysis requested, and samples inappropriate for the sample analysis requested.

3.4.1. Sample identity confirmation

Visual inspection is a means to confirm that the correct sample has been received. Verification of the sample identity is a simple process where the appearance, sample label, and records are compared. The sample must be properly labelled and must include:

1. The sample's unique identifier matching the Analysis Request Form,

2. If appropriate, the date and time of sample collection, and

3. Any additional information relevant and necessary for a specific test.

3.4.2. Verification of the analysis request form

Documents accompanying the samples should be reviewed upon receipt at the laboratory. Accurate identification details on laboratory samples are of utmost importance. Samples must be correctly labelled and request details (analysis request forms) have to be completed to the required standard. Sample and request details must be compatible. The form should contain the following information:

a. The identity of the fish farm (name, address, phone and e-mail),

b. Affected population data including location, species, size, age, source, data collection of sampling and time since introduction,

c. Data on the disease, including the morbidity and mortality rates (number of dead fish, onset date…), the duration, the clinical signs of disease, the behaviour of affected fish, any abnormalities found at necropsy and whether similar problems have occurred previously, and if so whether they were treated successfully or not.

d. Environmental data (salinity, temperature, pH and oxygen levels), the presence of harmful algae or other pollutants, and recent weather pattern such as storms, lightning etc.

e. Management data such as stocking rate, type of food, any medications used or vaccination performed any recent management changes, and stress factors present.

f. The telephone number and email address of person authorizing request for analysis.

g. Invoicing data of the owner (in case of charged examinations).

3.4.3. Sample integrity

Samples should be received or placed in a specified storage area in which environmental conditions are monitored and recorded.

The sample must be:

1. Collected in the correct, intact, container, device or non-expired transport media.

2. Transported under the correct conditions.

3. Processed/handled according to approved laboratory procedure.

4. In sufficient quantity to perform testing.

5. Received within acceptable time limitation (specific criteria to be determined by each laboratory).

3.4.4. Laboratory records

All the information that has any particular relevance to the materials and the analysis performed on them must be documented in a systematic manner at any point during its transit through the laboratory. Records must allow a test material to be traced back to its arrival and any information that arrived with it. Records must be retained and protected from misuse, loss or deterioration for an agreed time.

3.5. Storage conditions

The analyst that receives a sample for analysis must ensure that it is kept under proper storage conditions in accordance with the demands of the diagnostic procedures. Samples must be properly stored to ensure pathogen viability (frozen, refrigerated, or ambient temperatures). Samples should be stored away from all standards, reagents, food and other potentially contaminating sources. Samples should be stored in such a manner as to prevent cross contamination.

3.6. Laboratory sample tracking

Sample tracking should ensure that analytical results are reported for the correct sample. It is a process by which the location and status of a sample can be identified and documented at any moment. When the samples are received by the laboratory they are usually prepared for different analyses. In such cases the samples must be aliquoted. The minimal laboratory tracking process consists of providing a receipt of the received samples as well as the documentation of the sample storage (location, amount, date and time). The procedure for accomplishing the above mentioned varies from laboratory to laboratory, but the exact details of performing the operations of sample tracking should be documented in adopted SOP.

Laboratory sample IDs should be assigned to each sample in accordance with the laboratory SOPs. Each sample should receive a unique sample ID by which it can be logged, scheduled for analysis, tracked, and disposed of. Information to be recorded during sample log-in should include the field sample identification number, laboratory sample ID, date and time of sample collection on site and reception by the laboratory, the method of shipment, the analyses requested, the number and type of each sample, the quality control requirements, any special instructions, and other information relevant to the analysis.

3.7. Possible problems causing sample rejection

Specimens delivered to the receiving laboratory are rejected for the following reasons:

- Specimen without a batch /cage identification label or unlabeled.
- Specimen label that does not match the label on the attached Analysis Request Form or is mislabeled.
- Request form or Label with insufficient information.
- Request form without physician's stamp and/or signature.
- Request form with no mark on the required test.
- Specimen placed in an unsuitable container.
- General or unspecific testing mentioned in the request form.
- Leaking or contaminated container.
- Request form received without specimens and vice versa.
- Test requested is not available.
- More than a single sample in one bag/tube.

A rejected specimen should be documented in the rejection sheet or electronically, explaining the reason for rejection. All available information related to the specimen, date and time of rejection, the signature of the laboratory staff and the action taken should be mentioned.

References

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