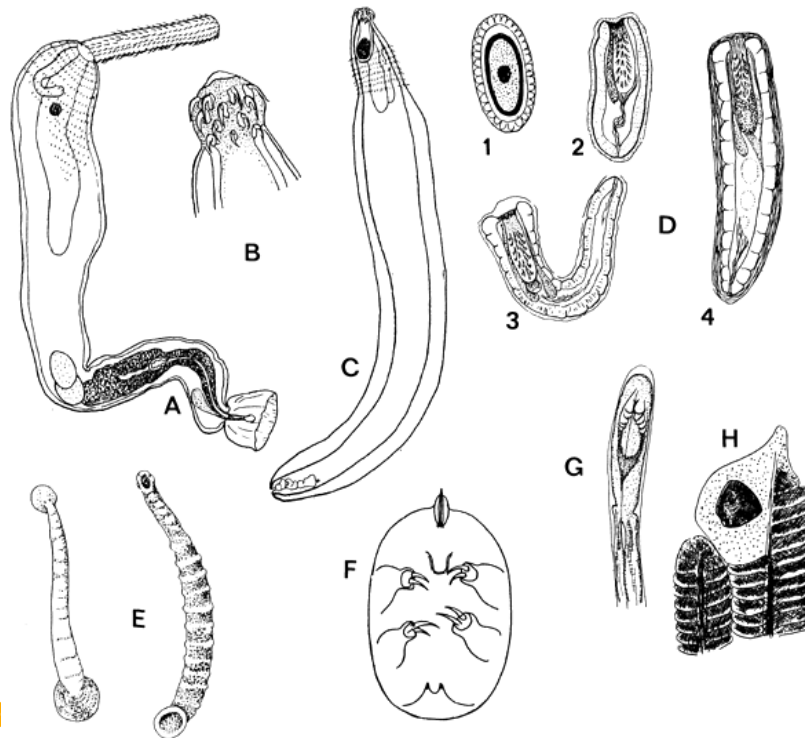


EAST AFRICAN STANDARD

Test methods for fish and fishery products — Part 3: Determination of parasites in finfish by candling



EAST AFRICAN COMMUNITY

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

Article 15(1) of the EAC SQMT Act, 2006 provides that "Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose".

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

© East African Community 2010 — All rights reserved*

East African Community

P O Box 1096

Arusha

Tanzania

Tel: 255 27 2504253/8

Fax: 255-27-2504481/2504255

E-Mail: eac@eachq.org

Web: www.each.int

Introduction

It is of the utmost importance that all samples accurately reflect bacteriological conditions at the time that sampling is done. All sampling must be carried out aseptically in order that no question as to the source of the bacteria present on a sample can arise. Samples must be processed as soon after collecting as is practicable. In the interim they must be held under conditions that will preserve the original bacterial flora as completely as possible, permitting neither die-off nor multiplication. Chilling the sample and holding it at the temperature of melting ice is usually the only feasible way in which samples can be stored without significantly changing the bacteriological picture. In some cases, samples must be frozen but it should be recognized that this may diminish bacterial numbers in the sample. Protracted frozen storage may further reduce the viability of bacterial in the samples. Do not freeze samples destined for *Vibrio parahaemolyticus* analysis. This standard is intended to offer guidance in minimizing errors due to mishandling of samples.

In the preparation of this East African Standard, the following sources were consulted extensively:

KS 1754-3:2003, *Test methods for fish and fishery products — Part 3: Determination of parasites in finfish by candling*

CAC/RCP 52:2003(Rev. 4:2008), *Code of practice for fish and fishery products*

IS 4303-1:1975, *Code of hygienic conditions for fish industry — Part 1: Pre-processing stage*

IS 4303-2:1975, *Code of hygienic conditions for fish industry — Part 2: Canning stage*

Codex Alimentarius website: http://www.codexalimentarius.net/mrls/vetdrugs/jsp/vetd_q-e.jsp

USDA Foreign Agricultural Service website: <http://www.nrlidatabase.com>

USDA Agricultural Marketing Service website: <http://www.ams.usda.gov/AMSV1.0/Standards>

European Union: http://ec.europa.eu/enterprise/sectors/pharmaceuticals/veterinary-use/maximum-residue-limits/index_en.htm

Assistance derived from these sources is hereby acknowledged.

Draft for comments only — Not to be cited as East African Standard

Test methods for fish and fishery products — Part 3: Determination of parasites in finfish by candling

1 Scope

This method is applicable to fresh or frozen fish with white flesh processed as fillets, loins, steaks, chunks, or minced fish.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CAC/GL 21, *Principles for the establishment and application of microbiological criteria for foods*

CAC/RCP 1, *Recommended international code of practice — General principles of food hygiene*

CAC/GL 30, *Principles and guidelines for the conduct of microbiological risk assessment*

CAC/GL 31, *Guidelines for the sensory evaluation of fish and shellfish in laboratories*

CAC/GL 48, *Model certificate for fish and fishery products*

CAC/RCP 52:2003(Rev. 4:2008), *Code of practice for fish and fishery products*

CAC/GL 53, *Guidelines on the judgement of equivalence of sanitary measures associated with food inspection and certification systems*

EAS 38, *Labelling of prepackaged foods — Specification*

3 Equipment and materials

3.1 Sharp knife

3.2 Candling table — Rigid framework to hold light source below rigid working surface of white, translucent acrylic plastic or other suitable material with 45-60 per cent translucency. Length and width of working surface should be large enough to permit examination of entire fillet, e.g., 30 × 60 cm sheet, 5-7 mm thick.

3.3 Light source — “Cool white” with color temperature of 4200 K. At least two 20-watt fluorescent tubes are recommended. Tubes and their electrical connections should be constructed to prevent overheating of light source. Average light intensity above working surface should be 1500-1800 lux, as measured 30 cm above centre of acrylic sheet. Distribution of illumination should be in ratio of 3:1:0:1, i.e. brightness directly above light source should be 3 times greater than that of outer field, and brightness of outer limit of visual field should be not more than 0.1 that of inner field. Illumination in examining room should be low enough not to interfere with detection of parasites, but not so dim as to cause excessive eye fatigue.

4 Sample preparation

Weigh entire sample and record weight on analytical reporting form.

4.1 Fillets

If fillets are large (200 g or larger), use one fillet for each of the 15 subsamples. If fillets are small (less than 200 g), randomly select fillets to prepare 15 subsamples of approximately 200 g each. Record actual weight analysed for each subsample. If fillets are more than 30 mm thick, cut with a sharp knife

into 2 pieces of approximately equal thickness (not to exceed 30 mm per fillet). Examine both pieces as described below. If fillets have a thickness of 20 mm or less, examine whole.

4.2 Fish blocks

Analyse 15 subsamples randomly selected from 2 thawed and drained blocks. Prepare the subsamples as described for fillet, above. Note separately any parasites observed in minced fish added to block around subsamples.

4.3 Steaks, loins, chunks

Prepare as for fillets.

4.4 Minced fish

If frozen in blocks, analyse 15 subsamples randomly selected from 2 thawed and drained blocks. Prepare subsamples as described for fillets, above. Select portions from different parts of block. If not in blocks, analyse 15-200 g portions. Do not further shred or chop minced fish.

4.5 Breaded fish portions

Thaw frozen products at room temperature in a beaker of appropriate size. After thawing, pour hot (50 °C) solution of 2 per cent sodium lauryl sulfate in water over fish in increments of 100 ml per 300 g of product. Stir with glass rod for 1 min. Let stand for at least 10 min or until breading separates from flesh. Transfer individual portions to No. 10 sieve nested over No 40 sieve. Wash breading through No. 10 sieve with gentle stream of warm tap water. Periodically examine No. 40 sieve containing the breading. Using UV light. Parasites will appear fluorescent under this light. Note any parasites detected and record on the analytical reporting form. Discard breading by backflushing the No. 40 sieve with tap water.

Examine fish portions by candling, using white light. If the flesh is pigmented, use UV light.

4.5.1 Examination

Parasites near the surface will appear red, tan, cream-coloured, or chalky white. Parasites deeper in the flesh will appear as shadows. Remove representative types of parasites or other defects found. Record general location, size, identification, and other observations as outlined below. For minced fish, spread portion on light table to a depth of 20-30 mm for examination. Select representative parasites for descriptive analysis.

4.5.2 Ultraviolet examination of dark-fleshed fish

Visually examine each portion (de-breaded or de-skinned, as necessary) on both sides under a desk lamp or similar light source. A magnifying desk lamp may be used. Report findings as described below. Conduct UV examination in darkened room. Examine each portion on both sides with reflected longwave UV light (366 nm wavelength). Parasites should fluoresce blue or green under light of this wavelength. Fish bones and connective tissues, which also fluoresce blue, may be differentiated by their regular distribution and shape. Bone fragments will be rigid when probed.

CAUTION! Never expose unprotected eyes to UV light from any source either direct or reflected. Always wear appropriate eye protection such as goggles with uranium oxide lenses, welder's goggles etc. when such radiations are present and unshielded. Keep skin exposure to UV radiations to a minimum.

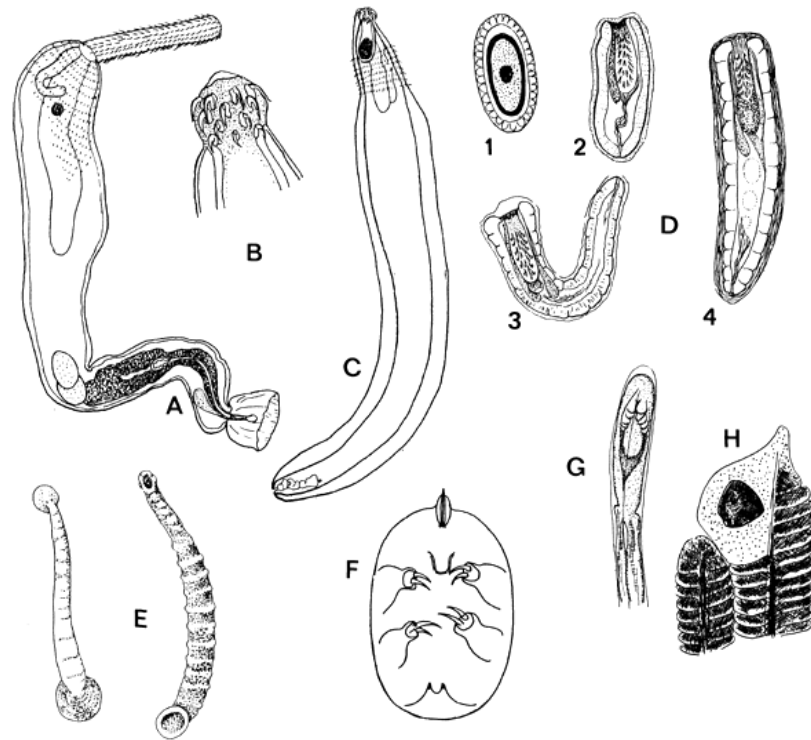


Figure 1 — Acanthocephala and various other parasites of fish

A. *Paragorgorhynchus chariensis*, male, 10–11 mm long. **B,C.** *Pallisentis tetraodontis*, female, 4.5 mm long, proboscis and whole view (A–C, after Troncy, 1977). **D.** Larval stages of acanthocephalans: **1.** egg (of *Neoechinorhynchus*, 60×25 µm); **2.** *Acanthella* from *Gammarus* amphipod, 1–4 mm long; **3.** *Acanthella* from ostracods (2–4 mm long). **4.** *Cystacanthus* (Acanthor) from fish (3–6 mm long). **E.** Piscicolid leeches (Hirudinea) (80–100 mm). **F.** Pentastomid larva. **G.** Parasitic larva of mutelid bivalve (after Fryer, 1970). **H.** Unionid glochidium embedded in the gill tissue.

Draft for comments only — Not to be cited as East African Standard

Draft for comments only — Not to be cited as East African Standard