
	FACULTY OF VETERINARY MEDICINE VETERINARY LABORATORY SERVICES UNIT
	Document Code : UPM/FPV/VLSU/G001 GUIDELINES FOR SPECIMENS SUBMISSION

1. Only requests for laboratory services accompanied by the **Specimen Submission & Test Request (SSR)** form (UPM/FPV/VLSU/BR014/SSR) shall be entertained.
2. The SSR must be filled by submitter with all required information as indicated in the form.
3. The SSR form must be endorsed (signed) by the submitter. Cases submitted by UVH must be **endorsed by the clinician only** before processing of specimen can proceed. For laboratory customers, the SSR form shall be endorsed by the responsible person (e.g. researchers, Heads of Unit, Veterinarians).
4. For each request for laboratory services, the submitter shall submit the completed SSR form. A copy of the completed SSR form must be submitted to the designated laboratory together with the specimen. The laboratory shall provide the customer with a receipt of submission slip.
5. In cases where multiple laboratory services are required, the specimen submitted to each laboratory must be accompanied with one SSR form. For example, if two laboratory services are required for a particular case, one form will be required for each of the two laboratories.
6. In case of failure by the laboratory to report the test result(s) due to technical misfortunes, the laboratory may request fresh samples from the client to repeat the test(s) at no cost to the client.

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**GUIDELINE FOR SUBMISSION OF SPECIMENS TO BACTERIOLOGY AND PUBLIC HEALTH
LABORATORY**

General submission guidelines

- Specimens should be as fresh as possible.
- For certain specimens such as clinical and pathological specimens, take from the edge of lesion, and to include adjacent and accompanying tissue, if possible.
- Ensure the collection of specimens is done in aseptic manner.
- Collect clinical specimens prior to antibiotic treatment.
- Submit **generous portions** of tissue or several millilitres of liquid.
- Maintain most specimens at refrigeration temperature (4°C) rather than frozen *en route* to laboratory.
- Submit specimens in clearly labeled, airtight, sterile containers.
- Send by hand or courier within a day.

SPECIMENS SUBMISSION GUIDELINE

SPECIMEN TYPE	CONTAINER	VOLUME	REMARKS
Milk	Sterile screw cap tubes or containers	Approximately 10 ml	<ul style="list-style-type: none"> • Place samples in a cooler container upon sample collection and transport to the laboratory. • Samples may be frozen without altering recoverability of pathogens.
Urine/Fluid	Clean, sterile container, or syringe	Approximately 10 ml	<ul style="list-style-type: none"> • Collect by taking mid-stream voided, by catheterisation or by cystocentesis.
Skin lesions (Pustules)	Sterile swab or sterile vial	As collected	<ul style="list-style-type: none"> • Disinfect surface with alcohol, allow to dry. • Preferably from the margin or edges of the lesion, either pierce with a sterile needle and absorb the contents onto a sterile swab or aspirate the contents and express



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SPECIMEN TYPE	CONTAINER	VOLUME	REMARKS
			<p>either onto a sterile swab or into a sterile vial.</p> <ul style="list-style-type: none"> • Use a sterile swab to sample areas of superficial pyoderma.
Tissues/ Organs/ Air sacs	Unfixed in sterile or clean containers	As collected or whole tissues (approx. 4 cm ³)	<ul style="list-style-type: none"> • Collect as soon as possible after death. • Use a heated scalpel blade to sear the surface of the organ (e.g. lung or liver), slit open and insert a sterile cotton swab. • Rotate the swab, remove and place into transport medium. • Alternatively, submit whole tissues (approx. 4 cm³) unfixed in sterile or clean containers
Swabs	Swab in transport medium	As collected	<ul style="list-style-type: none"> • Submit swab in transport medium (bacteria on dry swabs desiccate rapidly). • If the specimen is submitted to the laboratory within 3 hours, dry swabs in sterile containers are acceptable.
Abscess Material	Sterile container	Approximately 3 ml	<ul style="list-style-type: none"> • Collect pus along with scrapings from the abscess wall if practicable. • Material from recently formed abscesses is preferred.
Blood	EDTA tube	Approximately 5 ml	<ul style="list-style-type: none"> • Immediately Immediately inoculate into Tryptose Soy Broth (TSB) and transport to the laboratory. • Please contact laboratory to obtain the TSB, if necessary.
Serum	Sterile plain tube	Approximately 1 ml	<ul style="list-style-type: none"> • Collect approximately 5 ml of blood.



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SPECIMEN TYPE	CONTAINER	VOLUME	REMARKS
			<ul style="list-style-type: none"> • Allow blood to clot at room temperature. • Collect serum and transport to the laboratory in a cooler container.
Faeces	Sterile or clean container	As collected	Collect fresh faeces from the rectum or cloaca.
Soil/Bedding	Appropriate sterile or clean containers.	Min100 g	-
Water	Appropriate sterile or clean containers.	Min 100 ml	-
Hair pluck	Clean glass slide and cover using cover slip	As collected	-
Skin scrapping	Suitable clean container	As collected	-
Fungal culture	Pure growth on suitable agar plate, sealed	-	-
Egg	-	1 pc	Room temperature
Meat	Clean container	100 grams	Fresh meat, as long as not autolysed
Smear Slide	Thin smear on glass slide	Minimum 1 slide	Ensure all specimens are clearly labelled

(This guideline partly follows the "Field Guide to Submission of Specimen" Department of Veterinary Services, Ministry of Agriculture, Malaysia, 2002)



GUIDELINE FOR SUBMISSION OF SPECIMENS TO VIROLOGY LABORATORY

Collection of Samples

One of the important factors that determine the successful detection of pathogen-specific PCR product is the types of samples sent for analysis. Table 1 shows the types of tissue samples that are recommended for analysis by Real Time RT-PCR.

Table 1: Tissue samples recommended for identification of avian pathogens.

No.	Pathogens	Samples
1.	Newcastle Disease Virus (NDV)	Lung, trachea, caecal tonsil, brain, kidney
2.	Infectious Bursa Disease Virus (IBDV)	Bursa
3.	Type A Avian Influenza Virus (AIV)	Lung, trachea, intestine, swab (trachea and cloacae)
4.	Infectious Bronchitis Virus (IBV)	Lung, trachea, kidney, reproductive tract

(This guideline partly follows the "Field Guide to Submission of Specimen" Department of Veterinary Services, Ministry of Agriculture, Malaysia, 2002).

SPECIMENS SUBMISSION GUIDELINE

SPECIMEN TYPE	CONTAINER	VOLUME	REMARKS
Blood	EDTA tube	Minimum 1 ml	• Keep chill (4°C – 8°C), do NOT freeze
Faeces	Suitable clean container	Approximately 1g of fresh faeces	• Store at -20°C or below
Feather	Sealable plastic bags	Minimum 10 feathers	• Store at -20°C or below • One bag per bird • Place feather in tissue/cotton soak with alcohol
Fluid	Suitable clean container	Minimum 1 ml	• Store at -20°C or below
Serum	Suitable clean container	Minimum 1 ml	• Store at -20°C or below
Swabs	Viral transport medium	3 ml	• Store at -20°C or below
Tissues and Organs	Sealable plastic bags	Approximately 10 g of fresh tissue/organ	• Store at -20°C or below
Urine	Suitable clean container	Minimum 1 ml	• Store at -20°C or below



GUIDELINE FOR SUBMISSION OF SPECIMENS TO CLINICAL PATHOLOGY LABORATORY

SPECIMEN TYPE	CONTAINER	VOLUME	REMARKS
Serum	Plain tube, red cap or any tubes with no anticoagulants.	> 50µL for each test To request 1-3 test/s, need to submit more than 150uL	<ul style="list-style-type: none"> Separate the serum from the blood (allow the blood to clot at room temperature for at least 30 minutes before centrifuge at 5000 rpm for 5 - 10 minutes). Keep the serum (after separation) in the FREEZER.
Plasma	Heparin tube (green cap) or EDTA (purple cap) or Sodium Fluoride tube (grey cap)	> 50µL for each test To request 1-3 test/s, need to submit more than 150µL	<ul style="list-style-type: none"> If the serum has not been separated upon submission, do not FREEZE the specimens. EDTA whole blood (without separation) should be kept refrigerated until submission or mailing and should be mailed on a cold pack (insert paper towels between the blood and the icepack). Direct contact may cause freezing of red cells, with subsequent hemolysis. Plasma from EDTA tube are unsuitable for K and Ca analysis. For glucose biochemistry test, blood sample in plain tube, serum must be separated within 2 hours of blood collection. For research purpose and other specimen type, refer to the next guideline after this table.
Whole blood	Sodium Citrate tube (For coagulation test) EDTA Tube (For cross matching test)	>500µL	<ul style="list-style-type: none"> Fill the tube and gently invert the mixture 8-10 times. Fresh samples should be submitted (<6 hours after withdrawn from the blood vessel).




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GUIDELINES FOR SPECIMENS SUBMISSION

SPECIMEN TYPE	CONTAINER	VOLUME	REMARKS
	EDTA tube (purple cap) or Heparin tube (green cap) (For haemogram test)		<ul style="list-style-type: none"> For delayed submission (< 24 hours), keep the specimens cool (2°C-8°C). Do not freeze the specimens OR direct contact with ice upon delivery using ice box.
Fluid	Sterile universal container/tube	Minimum 1 ml	Ensure all specimens are clearly labelled
Tissue, smeared slide	Thin smear on glass slide	Minimum 1 slide	Ensure all specimens are clearly labelled
Faeces	Sterile universal container/ sample bag	Approximately 10 grams	Collect fresh faeces from the rectum or cloaca using a sterile or clean container.
Urine	Sterile universal container/tube	Minimum 1 ml	<ul style="list-style-type: none"> For 24-hour urine sample, refrigerate after collection. For Protein Creatinine Ratio, minimum 500µL are required.

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**GUIDELINE FOR SUBMISSION OF SPECIMENS TO CLINICAL PATHOLOGY LABORATORY
(FOR RESEARCH PURPOSE AND OTHER SPECIMEN TYPE)**

1. Samples shall be submitted together with a Specimen Submission & Test Request Form (UPM/FPV/VLSU/BR014/SSR).

Note: Please include your email address as the test results will be sent via email. Please include your phone number as well in case further clarification is required.

2. The SSR form shall be endorsed (Signature & official stamp) by the submitter or responsible person.
eg: Principal Investigator
3. Use only one (1) SSR form per submission (per sampling) regardless of number of samples submitted.
eg: One SSR form for 4 samples on 23rd March 2023.
4. Please contact us for an arrangement or appointment before submitting your samples (03-9769 3491/3481) or vet_hematologylab@upm.edu.my.

5. Fill out the Declaration of Acceptance of Test Results form before coming in for an appointment (the form will be provided).

Note: Send the completed form via email back to the laboratory or print it and bring it along to your scheduled appointment.


6. Kindly submit your samples within these stipulated times:

*Monday – Friday : 8.00 am -12.00 pm &
2.00 pm - 4.00 pm

*Submission times are subject to change without notice.

Note: Submitter/s who submit their samples outside those time without prior notice will not be entertained.

7. For sample handling, please follows the following guideline to ensure reliable test results.
 - a) Label the samples clearly using numeric (eg.: 1, 2, 3, ... n). Alphabet label **is not** accepted.
 - b) Label the samples clearly with specimen type (e.g: serum, EDTA plasma, heparinized plasma etc.).

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c) For Complete Haemogram (PCV, Plasma Protein, Icterus Index, WBC, RBC, HGB, PLT, WBC differential count, with blood smear):

- i) Fill the EDTA tube and gently invert the mixture 8-10 times.
- ii) Fresh samples should be submitted (<6 hours after withdrawn from the blood vessel).
- iii) For delayed submission (< 24 hours), keep the specimens cool (4°C-8°C).
- iv) Do not freeze the specimens OR direct contact with ice upon delivery using ice box.

Note: EDTA whole blood (without separation) should be kept refrigerated until submission or mailing and should be mailed on a cold pack (insert paper towels between the blood and the icepack). Direct contact may cause freezing of red cells, with subsequent hemolysis.

v) Please submit maximum of 20 samples per submission.

Note: Maximum of 10 samples for avian/reptile/fish per submission.

vi) The blood samples will be discarded 2 days after processed.

d) For Biochemistry (Refer to SSR form):

- i) Separate the serum from the blood (allow the blood to clot at room temperature for at least 30 minutes or 2 -4 hours refrigerated before centrifuge at 5000rpm for 5 - 10 minutes).
- ii) If the serum has not been separated upon submission, do not FREEZE the specimens (do not keep it in the freezer OR direct contact with ice upon deliver using ice box).

Note: Unseparated serum should be kept refrigerated until submission or mailing and should be mailed in a cold pack (insert paper towels between blood and the icepack). Direct contact may cause freezing of red cells, with subsequent hemolysis.


iii) Keep the serum (after separation) in the FREEZER.

Note: Plasma from EDTA tube unsuitable for K and Ca analysis.

iv) Sample volume: One biochemistry test >50uL serum.

eg: 3 tests (Na, K, Cl) : >150uL serum

5 tests (ALT, AST, ALP, Crea, and Urea): >250uL serum

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- v) Other samples (milk, urine, etc), please refer to their specific storage conditions. Improper sampling handling upon submission which incur unreliable results are not our responsibility.
- vi) No limit number of samples per submission.
- vii) The serum samples will only be preserved within 30 days starting from the date of reporting test results.

Additional information:

1. To avoid hemolysis, do not freeze whole blood, unseparated serum or unseparated plasma. Fill tube to the appropriate level and avoid vigorous mixing.
2. Submit EDTA whole blood for complete hemogram and serum or heparinized plasma for biochemistry tests.
3. Please consult lab staff for enquiries on other tests.



GUIDELINE FOR SUBMISSION OF SPECIMENS TO THE PARASITOLOGY LABORATORY

SPECIMEN TYPE	CONTAINER	VOLUME	REMARKS
Blood	EDTA or heparin tubes (Priority in EDTA tube)	1 - 3 ml	<ul style="list-style-type: none"> Mix properly to avoid clotting. For delayed submission (not more than 24 hours), keep chill (4°C – 8°C). DO NOT FREEZE. Samples sent for Trypanosome identification should be fresh (less than 24 hours). For PCR detection: Blood collection in EDTA tube only. Keep frozen at -20°C.
Faeces	Suitable clean containers	Approximately 10 g of fresh faeces	<ul style="list-style-type: none"> For delayed submission (not more than 24 hours), keep chill (4°C – 8°C). DO NOT FREEZE. For PCR detection: Keep frozen at -20°C
GIT	Appropriate container	Entire GIT depending on species	For delayed submission (not more than 24 hours), keep chill (4°C – 8°C). DO NOT FREEZE and send to the laboratory immediately.
Intestine, Organs	Clean, sealed plastic bags	As collected	
Organ scraping	Clean glass slide and cover using cover slip	As collected	
Ecto / Endo parasites	70% - 75% alcohol in capped bottles	As collected	<ul style="list-style-type: none"> Live parasites are acceptable Store at room temperature
Smears (from blood, organ, faeces)	Thin smears on clean glass slide	-	
Feather / Hair	Suitable clean containers	As collected	Store at room temperature
Skin scraping	Clean glass slide with glycerol and	As collected	Store at room temperature




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SPECIMEN TYPE	CONTAINER	VOLUME	REMARKS
	cover using cover slip		
Soil/water	Clean container	Min 100 g soil Min 100 ml water	Keep chilled (4°C – 8°C).
Tissue	Suitable clean container (fresh samples) 70% - 75% alcohol in capped bottles	As collected	Keep frozen at -20°C.

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GUIDELINE FOR SUBMISSION OF SPECIMEN TO HISTOPATHOLOGY LABORATORY

General submission guidelines.

- Specimen should be put in fixatives upon removal from the body or as soon after death as possible for at least 24 hours before sending to the laboratory.
- Tissue submerged in 10% Neutral-buffered formalin in an air-tight / sealed container.
- Tissue thickness of about 0.5-1.0 cm to ensure proper fixation.
- The specimen should be clearly labelled.

Bone and hard tissue

- Bone and other calcified material to send to the laboratory should be decalcified then cut into small pieces approximately 5mm before fixation.
- Additional charge of RM5.00 will be applied.




GUIDELINE FOR SUBMISSION OF SPECIMEN TO AQUATIC LABORATORY

LIVE/DEAD AQUATIC ANIMAL

ANIMAL	LIVE	DEAD (WITHIN 1 HOUR)	DEAD (WITHIN 12 HOURS)	REMARKS
Fish: <ul style="list-style-type: none"> • Small ≤500 gm ~ 5-10 pcs • Medium ≥500gm ~min 2 pcs • Large >25kg ~ 1 pc Shellfish: <ul style="list-style-type: none"> • Small ~ min 5-10 pcs • Large ~ 1 pc Other Aquatic Animal: <ul style="list-style-type: none"> • Tortoise/turtle ~ 1 pc 	<ul style="list-style-type: none"> • Put into suitable container or oxygenated plastic bag with label. • Store at room temperature in a dry state. 	Keep chilled (4°C-10°C), store in ice box.	Chilled or frozen. Store in between 4°C-20°C.	For Histopathology test: Dead animal (within 30 minutes) and store at room temperature in a dry state.

OTHER SPECIMENS

SPECIMEN TYPE	CONTAINER	VOLUME	REMARKS
Water sample	Water bottle or suitable container	500 ml	<ul style="list-style-type: none"> • Collect water sample without air. • Store at room temperature. • ADVISEABLE to collect water sample directly from owner's fish farm (onsite). • For PCR: Keep chilled (4°C-10°C), store in icebox.
Blood	Sterile plain tube	0.5 to 1.0 ml	Keep chilled (4°C-10°C), store in ice box.
Organ	Suitable container with 90% alcohol	As collected	<ul style="list-style-type: none"> • Keep sample chilled or frozen. • Store in between 4°C to - 20°C.
Internal Organ	Container of 10% Buffered Formalin, Bouin, Davidson	As collected	<ul style="list-style-type: none"> • Ratio tissue to buffered formalin ~ 1:10.

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SPECIMEN TYPE	CONTAINER	VOLUME	REMARKS
			<ul style="list-style-type: none"> • Store at room temperature in dry state.
Swabs	Sterile collection swabs	As collected	Keep chilled (4°C-10°C), store in ice box.
Media Culture	Agar media	-	<ul style="list-style-type: none"> • Broth and agar media to be inoculated. • Keep chilled (4°C-10°C), store in ice box.