## GUIDELINES ON THE USE OF DEEP THROAT SALIVA (DTS) AS ALTERNATIVE SAMPLE TO PERFORM REAL TIME RT-QPCR FOR COVID-19

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Ministry of Health Malaysia
Updated on 27 January 2022
Guidelines on the use of Deep Throat Saliva (DTS) as alternative sample to perform Real Time RT-qPCR for COVID-19

1. OBJECTIVE
As a guideline to ensure the process of collection, handling and processing of deep throat saliva specimens received for COVID-19 real time qRT-PCR are performed properly and systematically.

2. SCOPE
This work instruction shall be used for all DTS specimens collected for COVID-19 real time RT-qPCR.

3. PROCEDURE
   A Things to make sure before the collection of the DTS sample
   i. Patient must not eat or drink, smoke, chew tobacco/betel leaves, brush teeth or gargle with mouth freshener for at least 1 to 2 hours prior to the sample collection.
   ii. Let the patient sit comfortably, in a well-ventilated space.

   B Methods of DTS collection
   i. Instruct patient to drain mucus from the back of the nose and throat at least 3 times
   ii. Ask patient to forcefully breath in 3 times, with head tilt slightly up and cough out the DTS with mucus.
   iii. If patient find difficulty with earlier method, they can be asked to collect the saliva in mouth and bring at deep throat then gargle it for >30sec.
iv. Ask patient to lift specimen collection cup close to his/her mouth and take a deep breath in and cough out or spit out the DTS into the collection cup.

v. A minimum of 2 ml of deep throat saliva sample is required.

C. Packaging and transport of DTS

i. Sample collected in collection cup has to be labelled with patient’s details and sealed.

ii. Each sealed collection cups have to inserted in individual biohazard bag.

iii. All samples sent or brought to lab has to be packed in triple packaging with ice.

iv. Samples should reach the laboratory within the same day, on ice.

D. Processing DTS.

i. Unpacking

   • Move the sample packages near the biosafety cabinet, disinfect the outside area of the sample package with a suitable disinfectant before unpacking.

   • Take out the samples and place them in biosafety cabinet. Disinfect outside area of the sample container with a suitable disinfectant.

   • Discard the sample package after taking out the samples.

ii. As SARS-CoV-2 is a risk group 3 pathogen, the clinical sample must be heat treated to inactivate the virus. For this, please use either a heat block or an oven or a water bath or any other heating equipment to set temperature to 65°C.

iii. Carefully open the collection cup, and aliquot 200μL of DTS sample into microcentrifuge tube for inactivation and the remaining deep throat saliva sample in sample vial for storage in -80°C freezer.
iv. In the event if the saliva has dried up in the container, then suitable volume of sterile saline or Viral Transport Media can be added to make up to the volume needed to proceed with RNA extraction.

v. Confirm temperature of the heat block or oven or water bath or any other heating equipment reaches 65°C, before heat inactivating the samples for 60 minutes.

vi. Once samples have been inactivated, proceed with RNA extraction with the existing kits used in the laboratory.

vii. Upon completion of RNA extraction, proceed to use the extracts for Real Time RT-qPCR for COVID-19, using existing protocols used in the laboratory.

4.0 HANDLING PRECAUTIONS

i. Use adequate PPE (gowns, masks and gloves) when handling specimens for laboratory testing.

ii. Disinfect surface of the specimen counter each time after sorting out the specimens. Use disinfectant at recommended in-use dilutions.
5.0 REFERENCES


6.0 INQUIRIES

Any inquiries about this document can be referred to:

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GUIDELINE ON THE USE OF DEEP THROAT SALIVA TO TEST FOR COVID-19 BY RT-qPCR

**Algorithm of testing using Deep Throat Saliva (DTS) for Real Time RT-qPCR**

1. **Aliquot 200µL of DTS sample into microcentrifuge tube for inactivation**
2. **Inactivate DTS sample at 65°C for 60 minutes**
3. **Proceed DTS sample with nucleic acid extraction**
4. **Use the extracts for real time RT-qPCR for COVID-19**
5. **Analyze the test results**
   - **Detected (POSITIVE)**
     - **To be reported.**
   - **Not Detected (NEGATIVE)**
   - **Invalid**
     - **Repeat RT-PCR at 24-48 hours**
       - **Detected (POSITIVE)**
         - **To be reported.**
       - **Not Detected (NEGATIVE)**
       - **Invalid**
         - **Send new DTS sample for RT-qPCR within 24 hours**
         - **To be reported.**