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**Air Sanitation Test Setup / TPA Air Technology
At Central Veterinary Research Laboratory – CVRL, Dubai,
UAE**

Sampling Date: 01-Feb-2023
06-Feb-2023
09-Feb-2023
Submission Date: 17-Feb-2023
Sender Name: Prof Ulrich Wernery
Diagnostic No: D 561/2023
Location: CVRL – Room 1 - Virology Department
CVRL – Room 2 - Serology Cool Room
Address: 17th Street, Dubai, UAE
Results to: TPA Air Technology LLC

Equipment: Sugold Air Bacteria Sampler FX-100ST
Serial No ZJFX22-1202078
Sample Volume 100 ltr/min
Resolution 1 ltr/min
Precision < 2.5%
Calibration Certificate from 02-Dec-2022

Test Plates: CVRL – Blood Agar Plates
CVRL - Sabouraud Dextrose Agar Plates

Test Setup

On Wednesday, 01-Feb-2023 two TPA X8 Pro Air Sanitizer were installed and tested in the Room 1 - Laboratory Virology Department and the Room 2 - Serology Cool Room of the Central Veterinary Research Laboratory, one each room.

Before switching on the air sanitizer bacterial and fungal air samples are taken on special agar plates manufactured by the Central Veterinary Research Laboratory's own production.

CVRL - Blood Agar Plates for bacteria and CVRL - Sabouraud Dextrose Agar Plates for fungus were used to differentiate between the various pathogens. For better selectivity, standard 500 litre air samples and additional 100 litre air samples were taken in each room.

After switching on the air sanitizer, additional air samples were taken again after 5 days (06-Feb-2023) and 8 days (09-Feb-2023) of operation.

The agar plates were incubated in the CVRL's own laboratory at the temperatures and running times specified for the respective media and the result was recorded both, optically and quantitatively.

See **Annex A**.

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Conclusion

There was a significant difference in improvement of the air quality after just 5 or 8 days after the air sanitizer were put into operation.

As the labs of the Central Veterinary Research Laboratory are already cleaned very well by various filter devices (HEPA), a striking reduction in the amount of bacterial and fungal colony forming units per liter of air (cfu/L) could be determined.

Since various microbiological sources such as employees, air conditioning, and other sources are permanently present and can never be eliminated completely, the number of pathogens has nevertheless been significantly reduced.

At the same time, the dust was permanently removed from the rooms by the air sanitizer, thus removing the breeding ground for pathological germs to grow.

Using the washable air sanitizer as a pre filtering unit in the labs will avoid clogging all HEPA filters of the laboratory devices quickly and will therefore save a lot of costs and energy in the long term.

Recommendations

The test of the air sanitizer has shown that it not only removes dust from the air but also eliminates microbiological germs such as fungi and bacteria at the same time.

The use of the devices in animal husbandry in closed rooms under air conditioning can therefore only be recommended, especially in summer when temperatures and humidity are high.

We see enormous potential here by keeping animals f.e. falcons in closed rooms, particular to prevent diseases caused by airborne pathogens such as Aspergillus and E-Coli.

It is recommended to use the devices in human medicine as well. Here, too, a significant reduction in airborne pathogens can be assumed.

This would finally avoid any air-borne disease.

Dr. Dr. habil. U. Wernery
Scientific Director

Date: 17-Feb-2023



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Annex A

Effectiveness of Air Sanitation using TPA XL Pro Air Sanitizer in CVRL Lab
At Central Veterinary Research Laboratory – CVRL, Dubai, UAE

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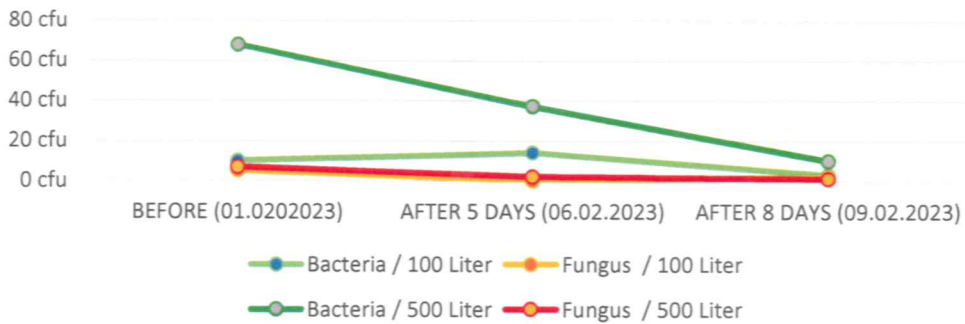
Room 1 - VIROLOGY DEPARTMENT

| Sample Test / Volume | BEFORE (01.02.2023) | AFTER 5 DAYS (06.02.2023) | AFTER 8 DAYS (09.02.2023) | Reduction |
|-----------------------|------------------------|---------------------------------|---------------------------------|-----------|
| Bacteria / 100 Liters | 10 cfu | 14 cfu | 3 cfu | 70% |
| Fungus / 100 Liters | 5 cfu | 0 cfu | 2 cfu | 60% |
| Bacteria / 500 Liters | 68 cfu | 37 cfu | 10 cfu | 85% |
| Fungus / 500 Liters | 7 cfu | 2 cfu | 1 cfu | 86% |

(cfu = Colony forming unit)

Average 75%

VIROLOGY DEPARTMENT



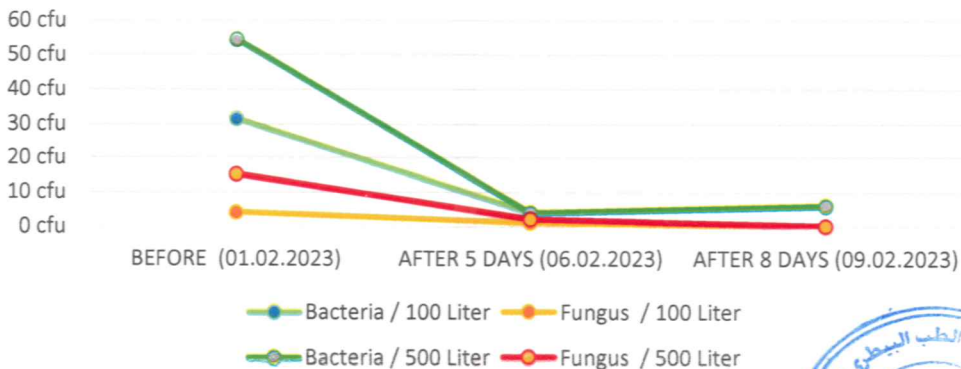
Room 2 - SEROLOGY COOL ROOM

| Sample Volume / Test | BEFORE (01.02.2023) | AFTER 5 DAYS (06.02.2023) | AFTER 8 DAYS (09.02.2023) | Reduction |
|-----------------------|------------------------|---------------------------------|---------------------------------|-----------|
| Bacteria / 100 Liters | 31 cfu | 4 cfu | 6 cfu | 81% |
| Fungus / 100 Liters | 4 cfu | 1 cfu | 0 cfu | 100% |
| Bacteria / 500 Liters | 54 cfu | 4 cfu | 6 cfu | 89% |
| Fungus / 500 Liters | 15 cfu | 2 cfu | 0 cfu | 100% |

(cfu = Colony forming unit)

Average 92%

SEROLOGY COOL ROOM



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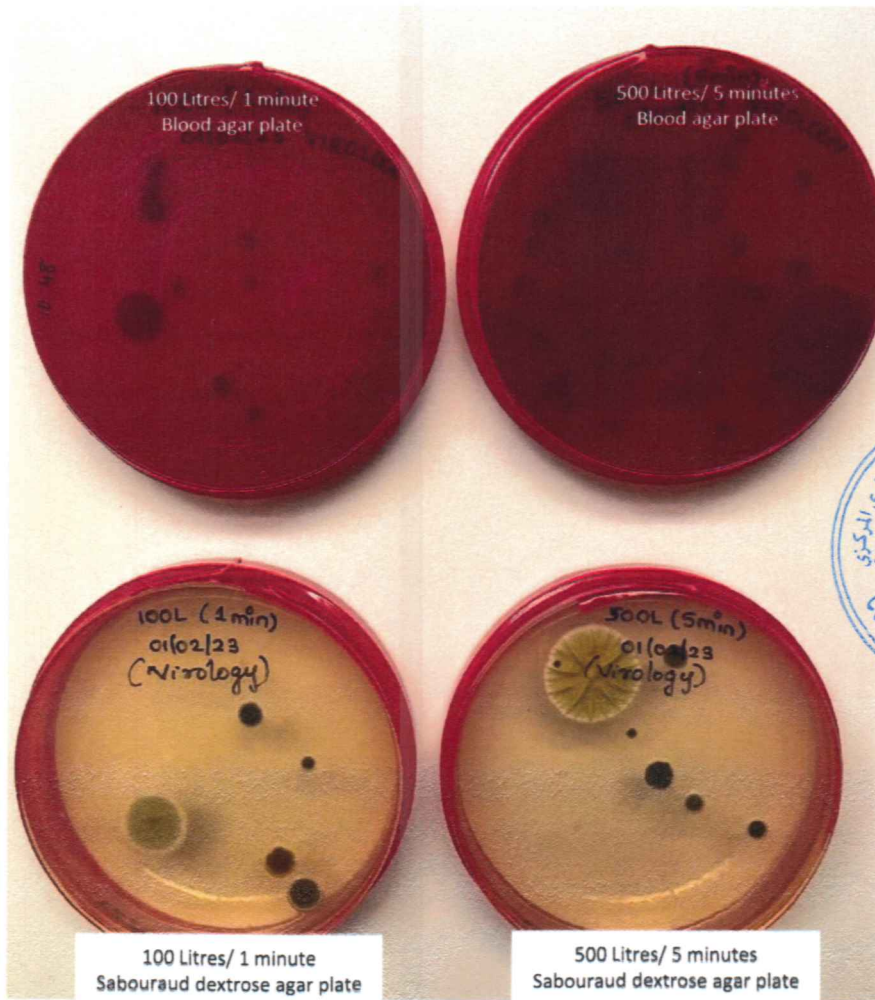
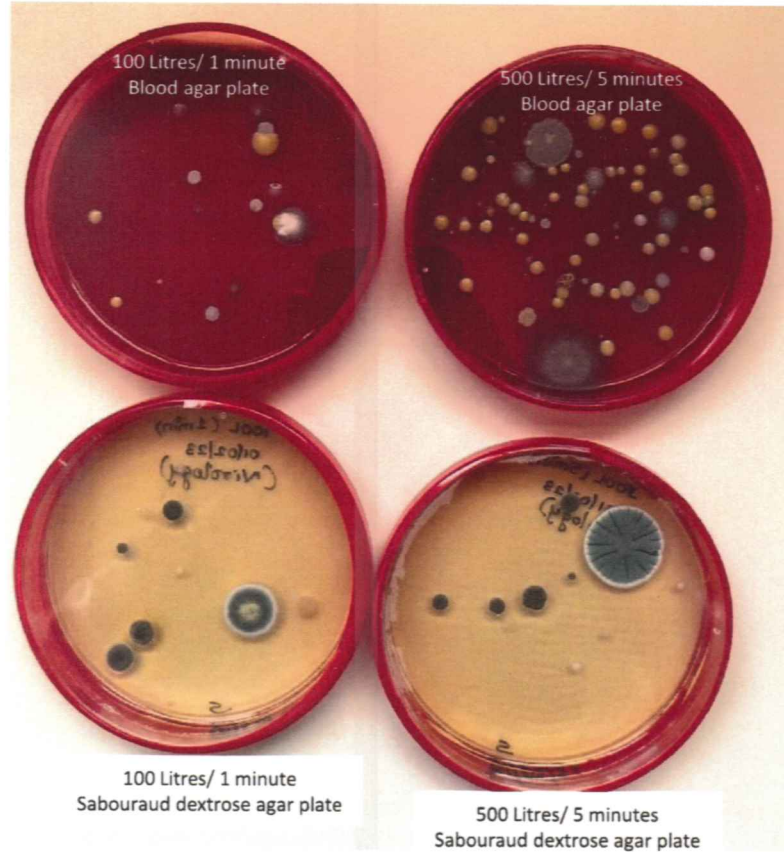


CVRL – Room 1 - VIROLOGY DEPARTMENT

before Air Sanitation on 01-Feb-2023

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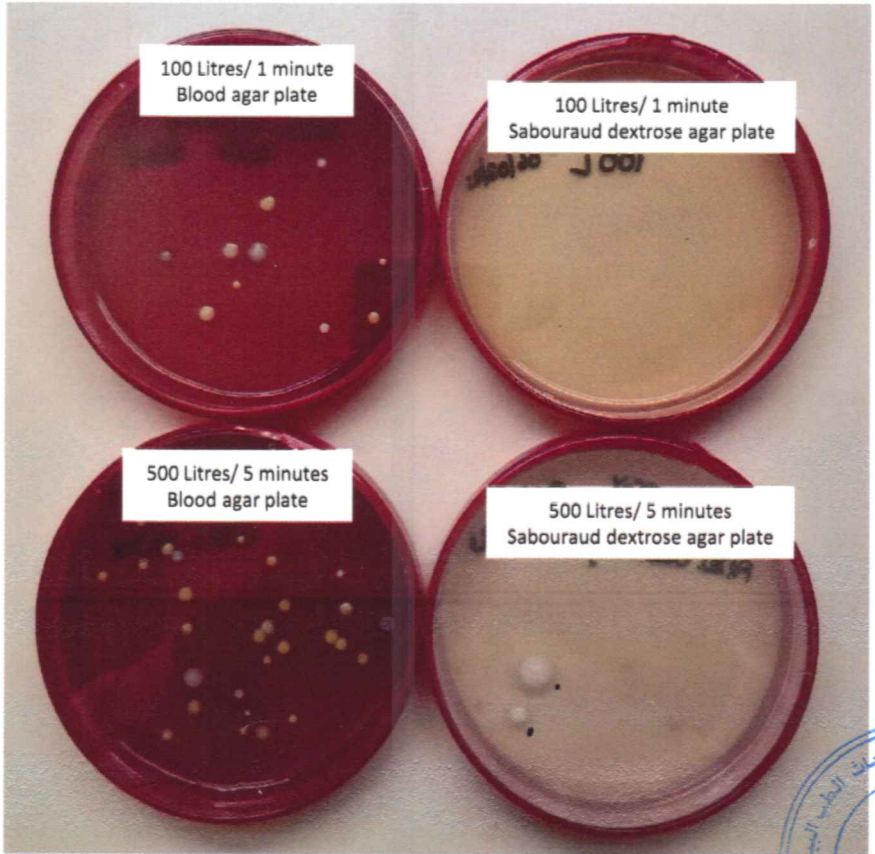
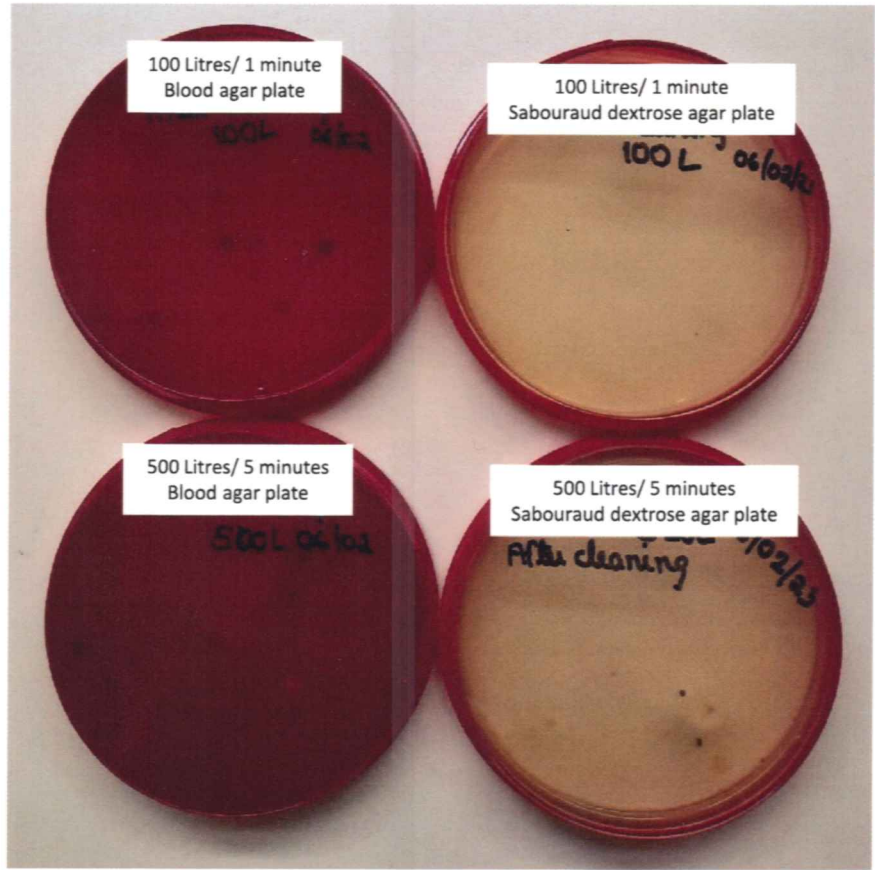


CVRL – Room 1 - VIROLOGY DEPARTMENT

after 5 days of Air Sanitation on 06-Feb-2023

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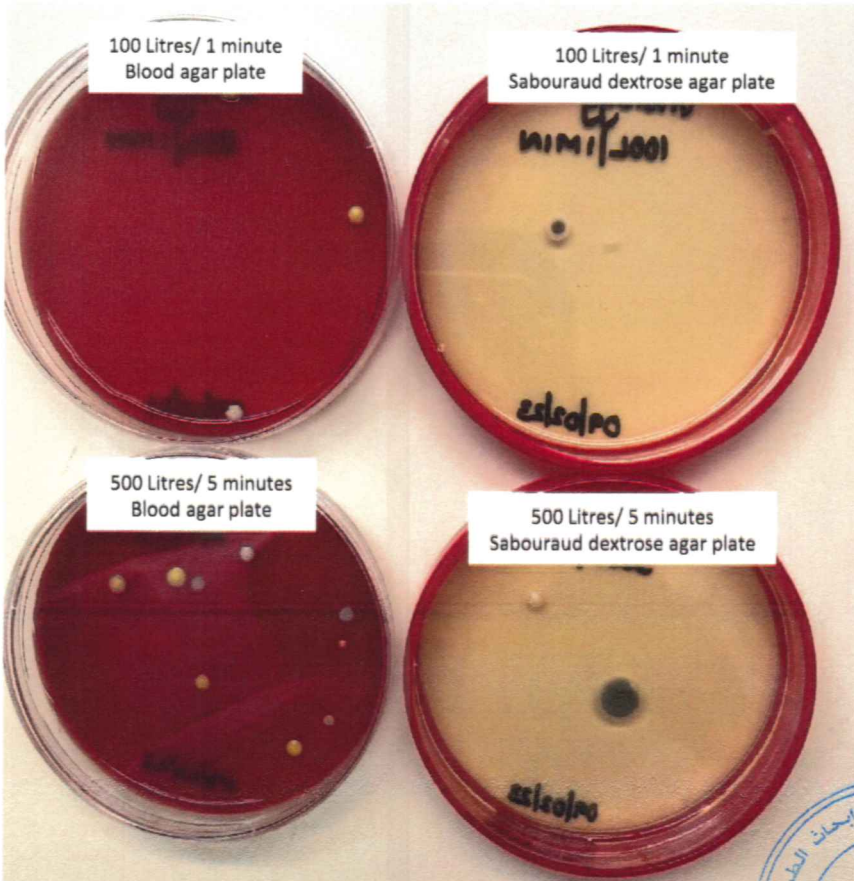
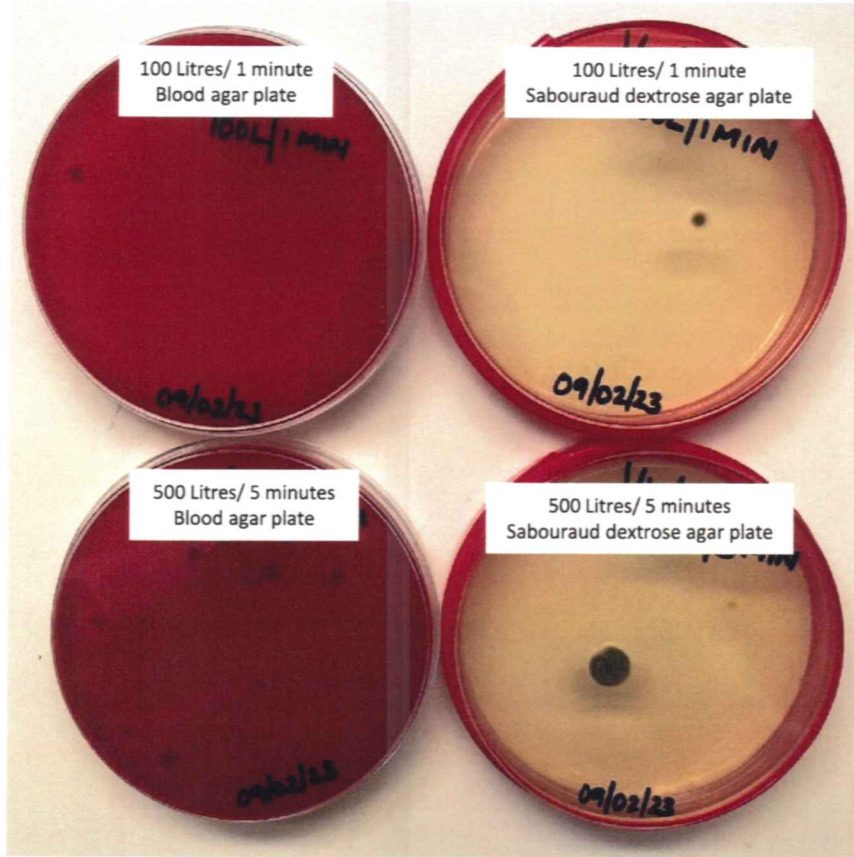


CVRL – Room 1 - VIROLOGY DEPARTMENT

after 8 days of Air Sanitation on 09-Feb-2023

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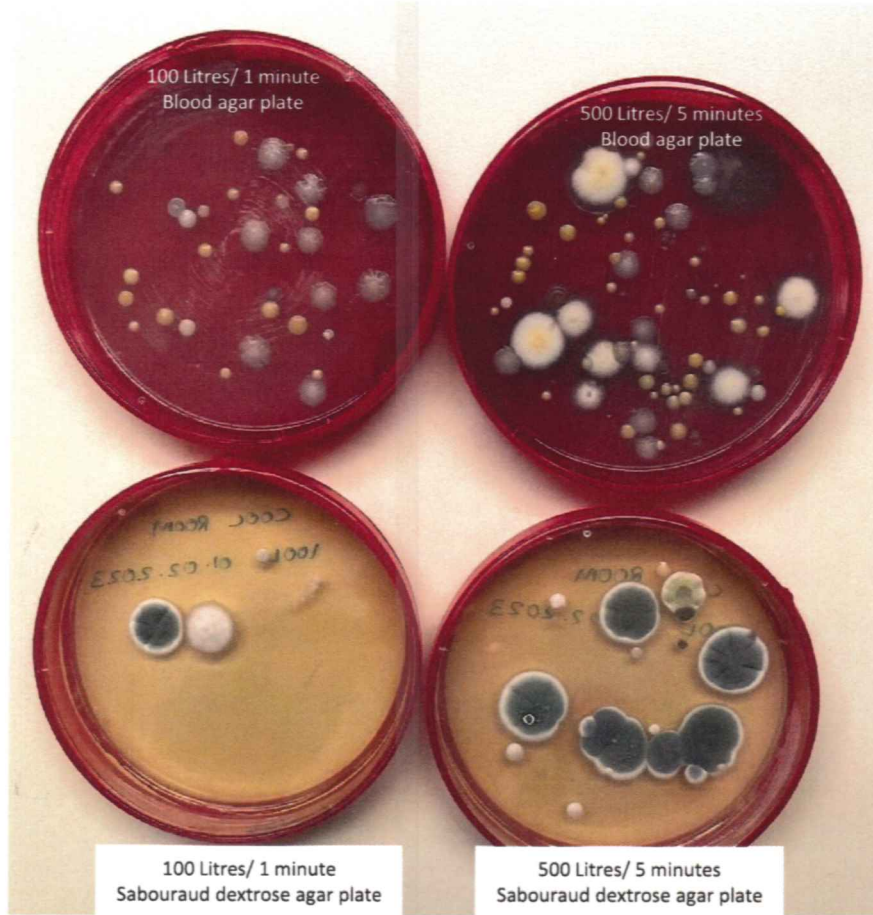


CVRL – Room 2 - SEROLOGY COOL ROOM

before Air Sanitation on 01-Feb-2023

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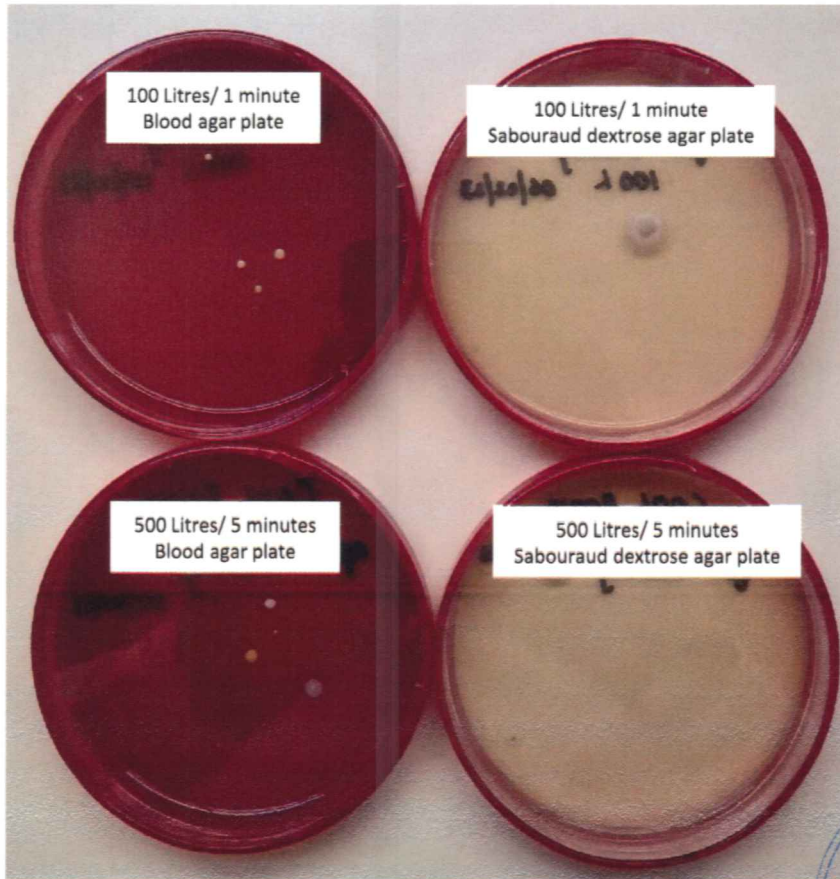
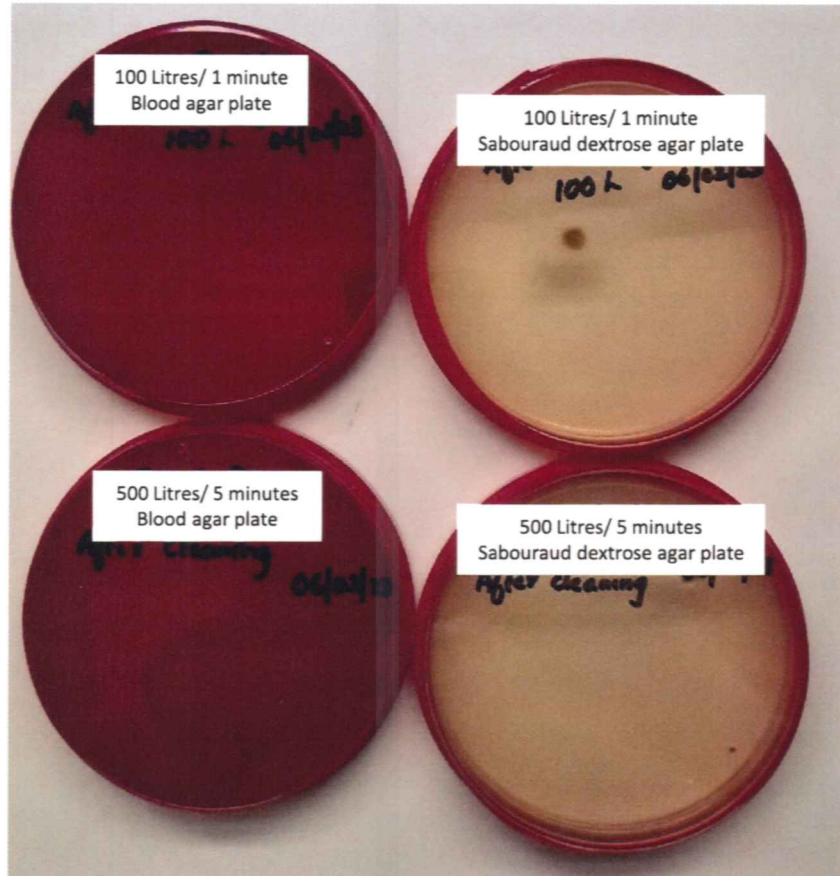


CVRL - Room 2 - SEROLOGY COOL ROOM

after 5 days of Air Sanitation on 06-Feb-2023

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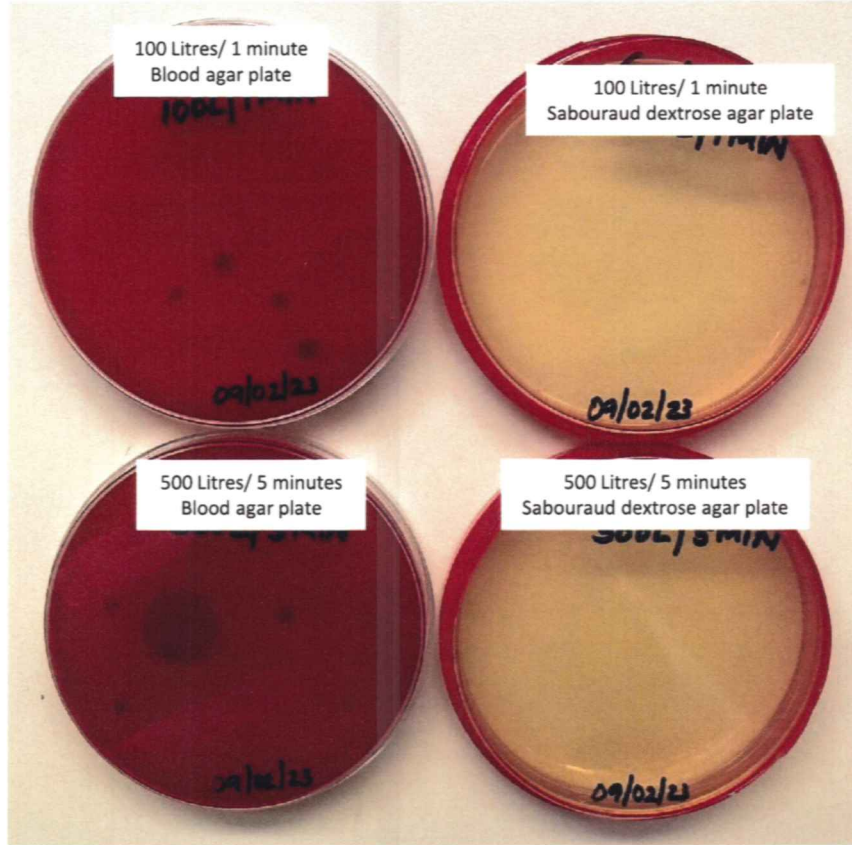


CVRL - Room 2 - SEROLOGY COOL ROOM

after 8 days of Air Sanitation on 09-Feb-2023

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