

Validation Test Results For THOR UVC

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Aim

Demonstrate efficacy of surface disinfection with UVC using blood-agar plates (microbiological efficacy). Suspensions of three different dilutions (0.5, 0.25 and 0.125 McFarland) of a micrococcus species were prepared from overnight grown cultures.

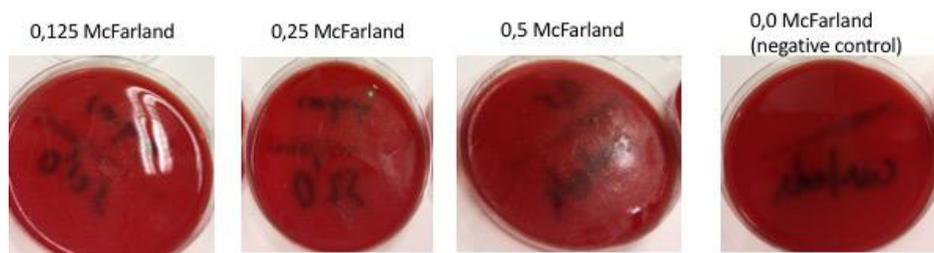
The suspensions were streaked onto blood agar plates and treated as follows:

1. 1 set of agar plates carrying 0.5, 0.25 and 0.125 McFarland of the micrococcus species, as well as 1 agar plate with no bacterial suspension (negative control) were placed into the room on top of a table. The lids were removed, prior to UVC disinfection of the room.
2. The same set of agar plates were kept outside the room, away from UVC radiation.
3. One blood agar with 0.5 McF of the micrococcus species was placed into a shadow area of the room (test 2) and another agar into a different shadow area.

After completion of the UVC disinfection cycle, agar plates were sealed and sent to the microbiology lab for overnight culture at 37°C. Results are shown in the figures below.

In short, none of the agar plates that were subjected to UVC treatment showed any bacterial growth after 24-hour incubation at 37°C. All the agar plates that were kept outside the room, except the negative control plate, showed abundant growth of micrococcus species.

Figure 1: blood agar plates, streaked with increasing concentrations of micrococcus species, and not subjected to UVC radiation grew increasing quantities of the micrococcus species, except for the negative control plate (no growth).



Agar plates not subjected to UVC-radiation

Figure 2: None of the blood agar plates subjected to UVC radiation showed any bacterial growth. Plates were placed into the room, with lids removed, on top of a table in close vicinity of the UVC robot.

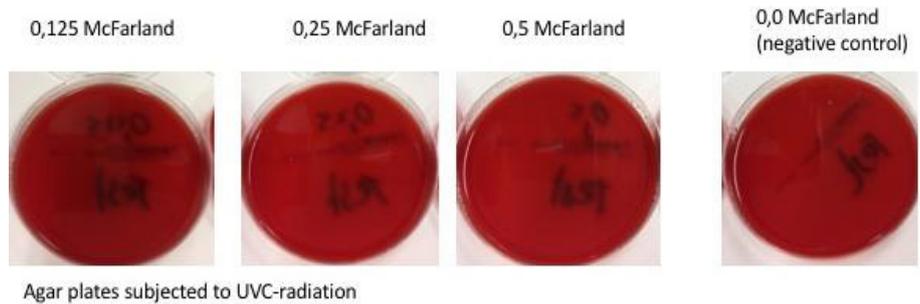
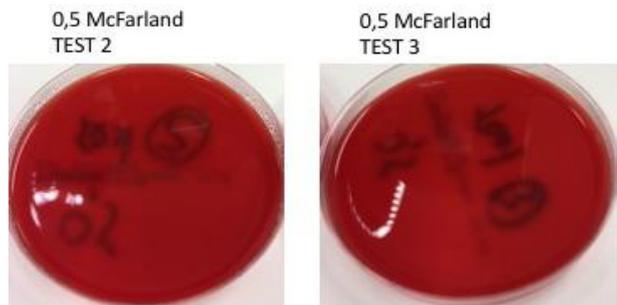


Figure 3: Two additional blood agar plates, each with 0.5 McFarland of the micrococcus suspension, were placed in two different areas of the room with indirect UVC radiation (shadow areas). None of the plates showed any bacterial growth.



Conclusions

UVC disinfection of the room effectively killed the micrococcus species, despite their growth on enriched blood agars, at a concentration as high as 0.5McFarland and even in shadowed areas.

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