

Summary of microbial experiments conducted on behalf of Done Robotics

The inactivation level, reported below as a percentage reduction, of three different fluences (25, 100 and 400 J/m²) was measured using two different microbial species, *Candida albicans* derived from ATCC® 10231™ and *Staphylococcus aureus* subsp. *aureus* derived from ATCC® 6538™.

The surface tested was a patterned desktop that was disinfected with 70% isopropyl alcohol prior to inoculating microbial suspensions with a set concentration onto the surface. The UV-C lamp (200 W) was placed at a fixed distance of 1.5 m from the surface and the total irradiance at this distance was 5.6 W/m². The room temperature was set between 20–25°C and the humidity was measured to 22% at the time of irradiation. Microbial suspensions inoculated onto the surface that were not irradiated were used as a reference.

The mean microbial concentrations, as colony forming units (CFU)/ml, were determined from swab samples taken from the surface after irradiation, diluted in phosphate buffered saline and plated onto tryptic soy agar plates that were incubated at 36°C ± 1°C. The percentage reduction for the three fluences tested were calculated by using the microbial concentration of the reference samples as initial concentration.

The UV-C irradiation significantly reduced the microbial growth on the desktop surface and a fluence of 400 J/m² resulted in a 99.3% reduction of *Candida albicans* (Table 1) and a 99.998% reduction of *Staphylococcus aureus* subsp. *aureus* (Table 2).

Table 1. Summary of percentage reduction of *Candida albicans* on a desktop surface using three different fluences.

Fluence (J/m ²)	Average CFU/ml swab sample	Percentage reduction
0	23100	
25	21700	6,1
100	1683	92,7
400	157	99,3

Table 2. Summary of percentage reduction of *Staphylococcus aureus* subsp. *aureus* on a desktop surface using three different fluences.

Fluence (J/m ²)	Average CFU/ml swab sample	Percentage reduction
0	125667	
25	84000	33,2
100	27	99,98
400	3	99,998

Dr. Eva Högfors-Rönholm
Researcher
Novia University of Applied Sciences