



中国认可
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检测
TESTING
CNAS L0823



202019005395

广州市微生物研究所有限公司

GUANG ZHOU INSTITUTE OF MICROBIOLOGY CO., LTD.

检测报告

TEST REPORT

Report Number

QX20210140

Name of Sample

UNIPIN Air Disinfection Robot

Applicant

Guangdong Unipin Medical Technology
Co., Ltd.



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TEST REPORT

Date Received: Mar. 19, 2021

Date Analyzed: Jun. 02, 2021

Name of Sample	UNIPIN Air Disinfection Robot	Source of Sample	Delivery
Applicant	Guangdong Unipin Medical Technology Co., Ltd.	Client	Wu Zhicheng
Manufacturer	Guangdong Unipin Medical Technology Co., Ltd.	Brand	UNIPIN
Type and Specification	TP-KQ-01	Quantity of Sample	IPC
Date of Production	2020.11.25	State of Sample	Machine
Batch Number	20201125	Packing of Sample	In box
Standard and Methods	<Technical Standard For Disinfection>2002-2.1.3 Air disinfection effect evaluation test		
Items of Analysis	1. Simulated Field Test (<i>Staphylococcus albus</i> 8032) 2. Field Test (Natural bacteria in air)		
Remarks	_____		

To be continued



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Method for Testing Air Disinfection:

1. Test Equipment

- 1) Test microorganism: *Staphylococcus albus*
- 2) Microbial aerosol generator: TK-3
- 3) Culture media: NA
- 4) Sampling equipment: six-stage sieve sampler

2. Test Conditions

- 1) The volume of the test chamber: 20 m³
- 2) Environment temperature: (20~25) °C
- 3) Environment humidity: (50~70) % RH

3. Operation Conditions of the Machine

Set the switch to position "The highest wind speed", "UV".

4. Test Procedures

- 1) Get a bacteria slant culture (4~5 generation) which is incubated at 37 °C for 24 h, wash the culture from this slant with 10 mL NB, filter the liquid culture by aseptic cotton buds, and dilute this inoculum with NB to suitable concentration. Then make atomized bacterial suspension.
- 2) The equipment is placed in the two test chambers respectively, close the door, and open the HEPA filter. Simultaneously operate the environmental control devices until the experimental cabin temperature to be (20~25) °C, relative humidity to be (50~70) %RH, Turn off the chamber environmental control system.
- 3) Release microbial aerosol: turn on the microbial aerosol generator, then turn on the ceiling fan, turn off the fan after 5 min, and let stand for 5 min.
- 4) At the same time, the test group and the control group were sampled with six-stage sieve sampler.
- 5) The test group started the sample and sampled after 120 min of action, and the control group also sampled in the corresponding time period.
- 6) Choose 2 NA plates (the same batch) as the negative control, and culture them on the same condition with the samples.
- 7) Run the test three times.

5. Computational Formula

$$\text{Natural decay rate } N_t(\%) = \frac{V_0 - V_t}{V_0} \times 100$$

Where: V_0 = Original Bacteria Count of Control group; V_t = Bacteria Count after Treatment of Control group.

$$\text{Killing Rate } K_t(\%) = \frac{V_1 \times (1 - N_t) - V_2}{V_1 \times (1 - N_t)} \times 100$$

Where: V_1 = Original Bacteria Count of test group; V_2 = Bacteria Count after Treatment of test group.

To be continued



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Test results

Number of Sample	Test Strain	Test Time (min)	Test Number	Control Group			Test Group		Killing Rate K_t (%)
				Original Bacteria Count V_0 (cfu/m ³)	Bacteria Count after Treatment V_t (cfu/m ³)	Natural Decay Rate N_t (%)	Original Bacteria Count V_1 (cfu/m ³)	Bacteria Count after Treatment V_2 (cfu/m ³)	
QX20210140-1	<i>Staphylococcus albus</i>	120	1	1.25×10^5	9.97×10^4	20.24	1.16×10^5	<7	>99.99
			2	1.39×10^5	1.03×10^5	25.90	1.45×10^5	<7	>99.99
			3	1.29×10^5	1.00×10^5	22.48	1.18×10^5	<7	>99.99

Note: The negative control group was sterile growth.

To be continued



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Method for Testing Air Disinfection:

1. Test Equipment:
 - 1) Culture media : NA
 - 2) Sampling equipment: six-stage sieve sampler
 - 3) Test space: 30 m³
2. Operation Conditions of the Machine
Set the switch to position "The highest wind speed", "UV".
3. Test Procedure
 - 1) The equipment is placed in the test space, close the door, and collect natural bacteria by six-stage sieve sampler, as the bacterial count before disinfection.
 - 2) Start the sample and shut it down after running for 120 min. The natural bacteria are collected by six-stage sieve sampler, as the bacterial count after disinfection.
 - 3) In sampling, place the sampling equipment in the center of test chamber at the height 1.0 meter.
 - 4) Choose 2 NA plates (the same batch) as the negative control, and culture them on the same condition as the samples.
 - 5) The tests repeat three times, and calculate the death rate respectively.

4. Death Rate $K_t(\%) = \frac{V_0 - V_t}{V_0} \times 100$

where: V_0 = The Average Bacterial Count in Air before Disinfection;

V_t = The Average Bacterial Count in Air after Disinfection.

Test results

Number of Sample	Test Strain	Test Time (min)	Test Number	The Average Bacterial Count in Air before Disinfection V_0 (cfu/m ³)	The Average Bacterial Count in Air after Disinfection V_t (cfu/m ³)	Death Rate K_t (%)
QX20210140-1	Natural Bacteria in Air	120	1	3.43×10^3	1.98×10^2	94.23
			2	3.99×10^3	2.26×10^2	94.34
			3	3.29×10^3	1.98×10^2	93.98

Note: The negative control group was sterile growth.

End of report

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