Laboratory of Medical Biopathology and Molecular Medicine
Eygenideio Clinic University of Athens
Papadiamantopoulou 20 Ilisia Athens

Test investigation under real conditions on the effectiveness of a photocatalytic paint system in reducing the bacterial load in certain environments –the interior walls and the room indoor air

Scientific Director: Professor N.I Legakis. Microbiologist
Head of laboratory: Dr. M.Tsakiri. Biopathologist
Scientific expert: Mrs. E.karahaliou. Lab Technician

Test investigation under real conditions on the effectiveness of a photocatalytic paint system in reducing the bacterial load in certain environments –the interior walls and the room indoor air

Contents

Test description

Test investigation, under real conditions, on the effectiveness of the photocatalytic paint system in reducing the bacterial load in certain environments: the interior walls and the indoor air, at Eygenideio Clinic of Athens University (www.eugenideio.uoa.gr)

Concepts and Conditions

For the conduction of the specific research one room in the first floor of the clinic was used: room number 111. The basic reason was to limit the influence of possible different test conditions affected by factors such as indoor air quality and ventilation conditions, temperature, humidity, medical treatments and cleaning methods. An important objective was to investigate the effectiveness of the photocatalytic paint system in real time conditions such as daily and uncertain urgent conditions. For this reason, during the experiment the test the room was, most of the time, occupied by patients and in general, it was under full medical service function.

No cleaning methods concerning wall treatment took place during the test measurements.

For the conduction of the test Air Ideal 3P instrument by Biomerieux was used.

For the treatment of the Room 111 Active-Cool Photocatalytic paint By Abolin Co was applied.

Room 111 **8/5/2008**

Test Examination Room 111 Before treatment with Photocatalytic Coating			
Investigation Area	Mackonkey Agar	Sabouraud Agar	Blood Agar
Walls	Barren	Barren	5 Colonies/ m^2 Staphylococci
Indoor Air	3 Colonies/ m^3 Gram (-) Bacteria	5 Colonies/ m^3 Penicillium	600 Colonies/ m^3 Staphylococci-micrococcus

Room 111 **19/5/2008**

Test Examination Room 111 After treatment with Photocatalytic Coating			
Investigation Area	Mackonkey Agar	Sabouraud Agar	Blood Agar
Walls	Barren	Barren	Barren
Indoor Air	2 Colonies/ m^3 Gram (-) Bacteria	6 Colonies/ m^3 Penicillium	345 Colonies/ m^3 Staphylococci-micrococcus
Dry coating Sample	Barren	Barren	Barren

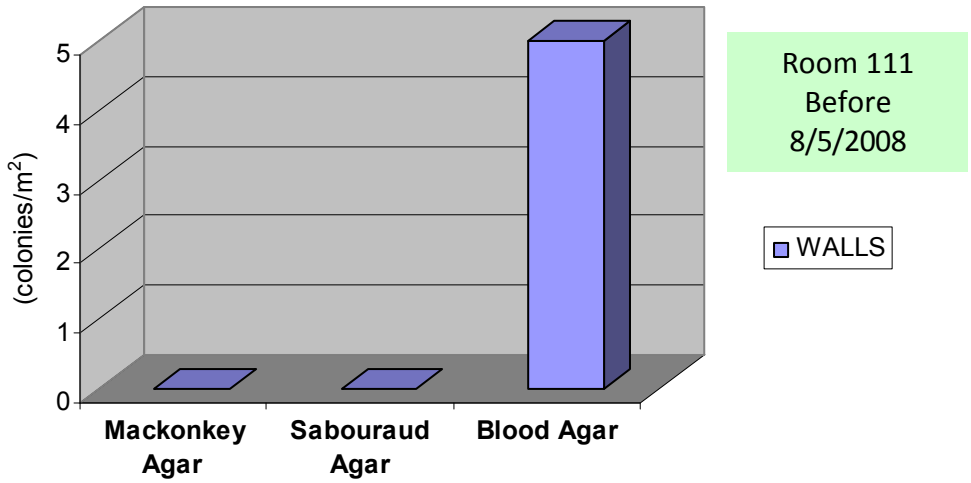

Figure 1: Test results for Mackonkey Agar, Sabouraud Agar and Blood Agar on the interior walls of the room before the application of the photocatalytic coating

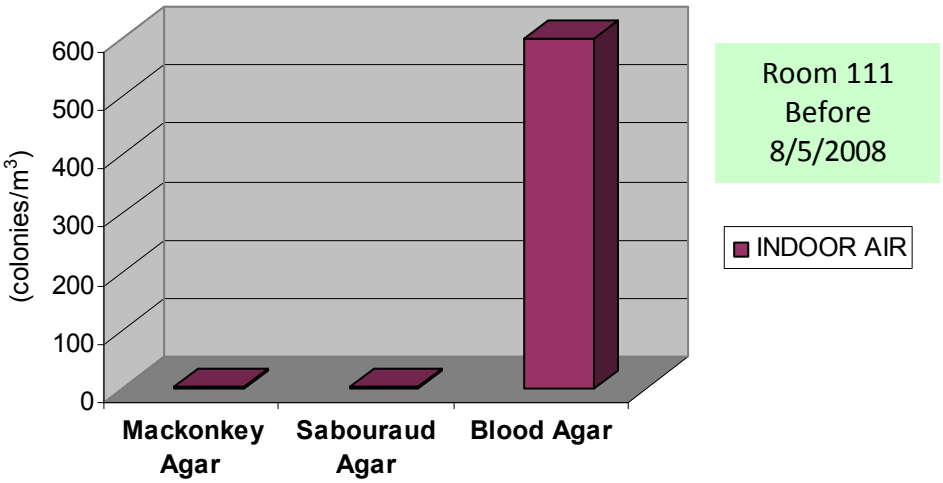

Figure 2: Test results for Mackonkey Agar, Sabouraud Agar and Blood Agar in the indoor air of the room before the application of the photocatalytic coating

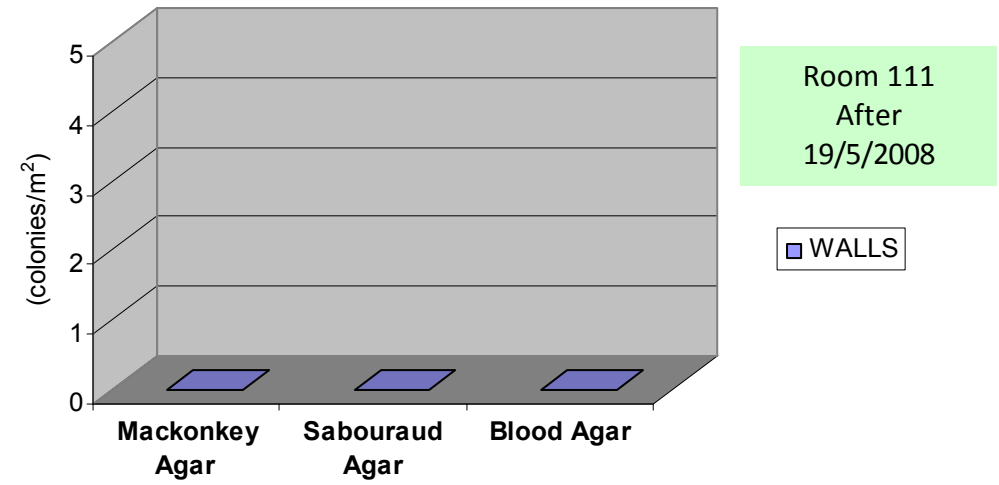

Figure 3: Test results for Mackonkey Agar, Sabouraud Agar and Blood Agar on the interior walls of the room after the application of the photocatalytic coating

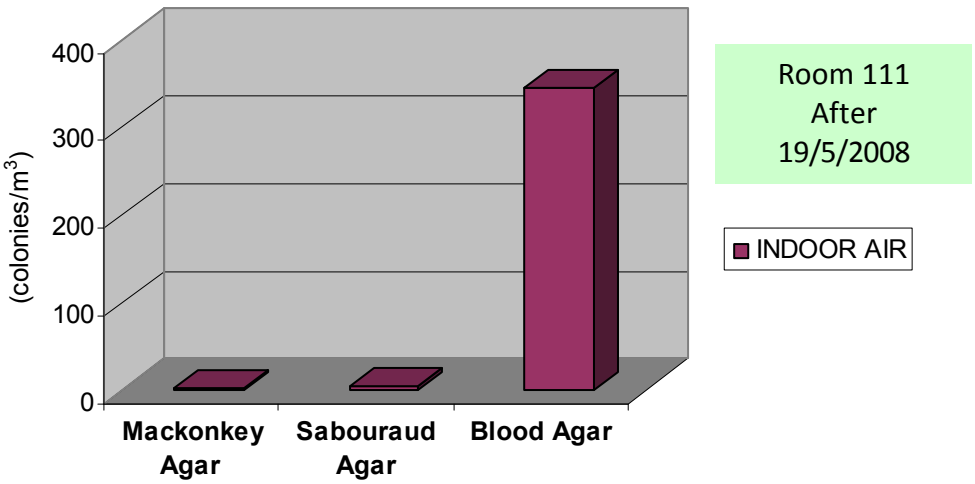

Figure 4: Test results for Mackonkey Agar, Sabouraud Agar and Blood Agar in the indoor air of the room after the application of the photocatalytic coating

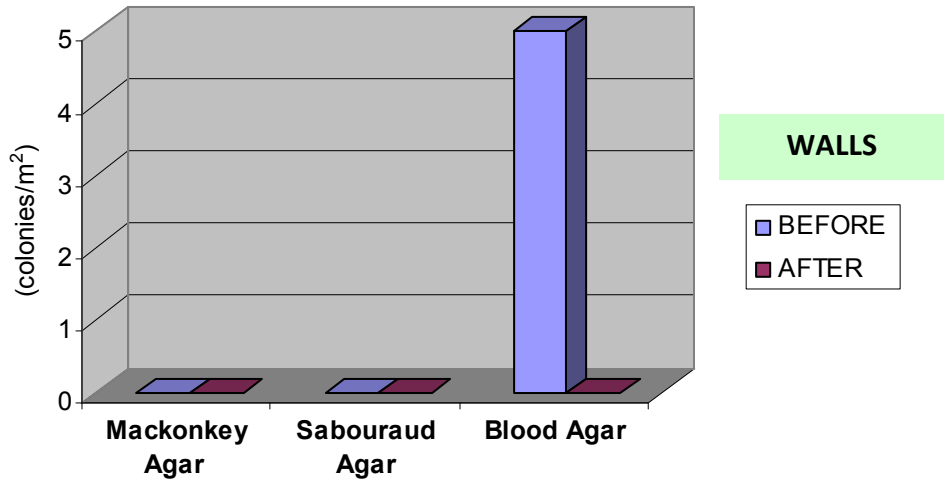

Figure 5: Comparative test results for Mackonkey Agar, Sabouraud Agar and Blood Agar on the interior walls of the room before and after the application of the photocatalytic coating

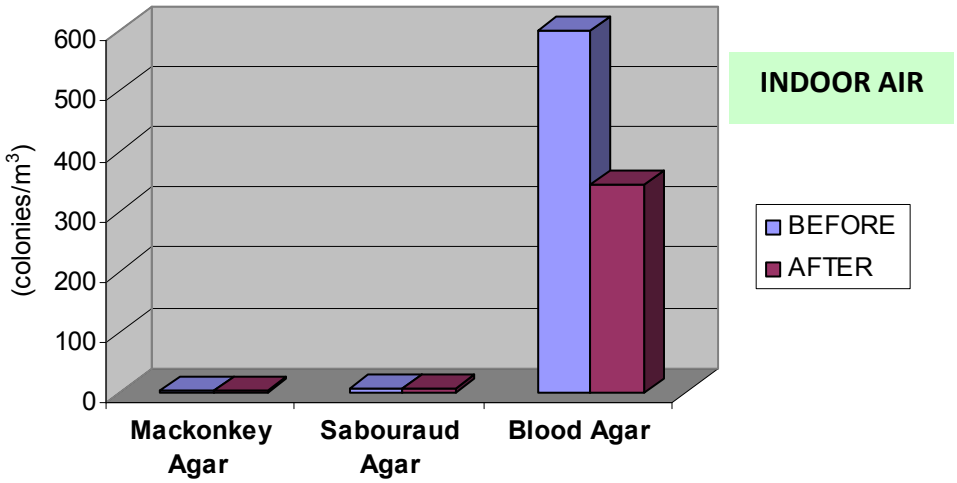

Figure 6: Comparative test results for Mackonkey Agar, Sabouraud Agar and Blood Agar in the indoor air of the room before and after the application of the photocatalytic coating

Conclusions

General

The condition of surfaces such as walls, as well as indoor air quality in critical spaces such as hospitals, are very important factors concerning healthcare services. Additionally, factors that can contribute in a positive way in reducing healthcare risks, such as hospital infections, are very important.

Test results under real conditions have demonstrated that the application of a photocatalytic coating on the walls of hospital room can contribute significantly in reducing colonies of Mackonkey Agar and Blood Agar on the walls and the indoor air. The coincidental increase in the measurement of Penicillium colonies/ m^3 during the test and after the application of the photocatalytic coating can not be attributed to the photocatalytic process, but in other non permanent sources/ factors.

Although test investigations under real conditions, give indicative results, they can't take into account unpredictable factors or situations.

Results concerning the use of the photocatalytic coating

Investigation Area	Mackonkey Agar	Blood Agar
Walls		100% Reduction
Indoor Air	33% Reduction	42% Reduction

The director of Clinic

ΣΑΒΒΙΔΗΣ ΓΕΩΡΓΙΟΣ
ΓΕΝΙΚΟΣ ΔΙΕΥΘΥΝΤΗΣ

ΕΥΓΕΝΙΔΕΙΟΝ ΘΕΡΑΠΕΥΤΗΡΙΟΝ
ΑΓ. ΤΡΙΑΣ Α.Ε.
ΑΦΜ 094050586
ΤΗΛ. 72 28 233
ΑΝΩΝΥΜΟΣ ΕΤΑΙΡΕΙΑ

End of Report