

## Influence of air ionization on the reduction of bacteria in air and on surfaces (bench tops and tables)

Tests conducted by:

ABC Research Corporation

Gainsville (USA)  
25.07.1984

**test room:** (46,3 m<sup>3</sup>) 5,18 x 3,66 x 2,44 m

**appliance:** aerotec 60

**ionization intensity:** level 5 of 8

**ionization tubes:** 3 pcs.

type: IRE

dimensions: length: 365 mm; diameter: 38 mm

### cultivation parameter:

#### A:

air sampler: Ross Microban

sampling time: 5 min

sampling flow rate: 28,4 l / min

cultivation medium: plate count agar

measurement counts: 9 plates

#### B:

sampling time: cultivation plates 5 min exposure to air

cultivation medium: plate count agar

measurement counts: 3 plates

**C:**

sample: Facon sterile swabs premoistened in phosphate buffered saline  
sample area: 25,8 cm<sup>2</sup> at tables and bench tops  
cultivation medium: plate count agar  
measurement counts: 3 swabs

**measuring protocol:**

three measurements at: 0, 24, 48 h ionization turned off

three measurements at: 0, 24, 48 h ionization turned on

**inoculation method:**

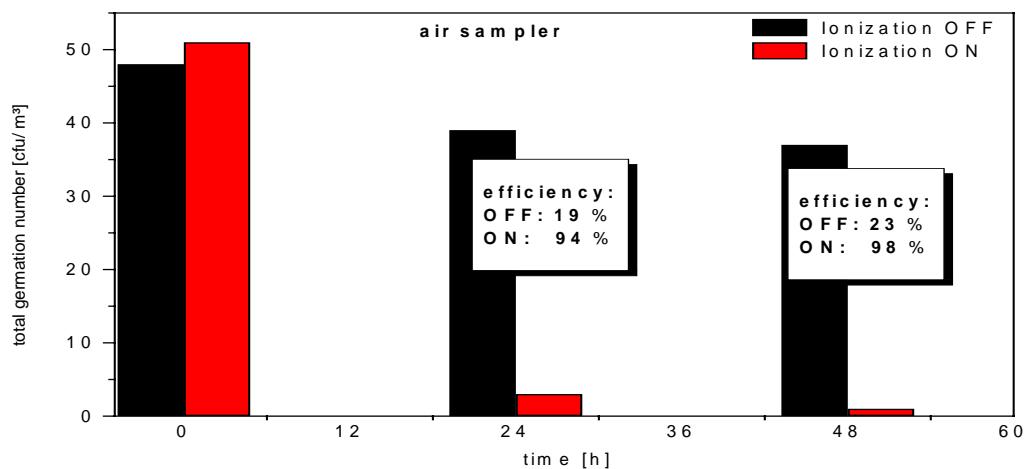
inoculation instrument: Micro-Tech. Atomizer

inoculation location: at a height of 2,13 m in the center of the test room

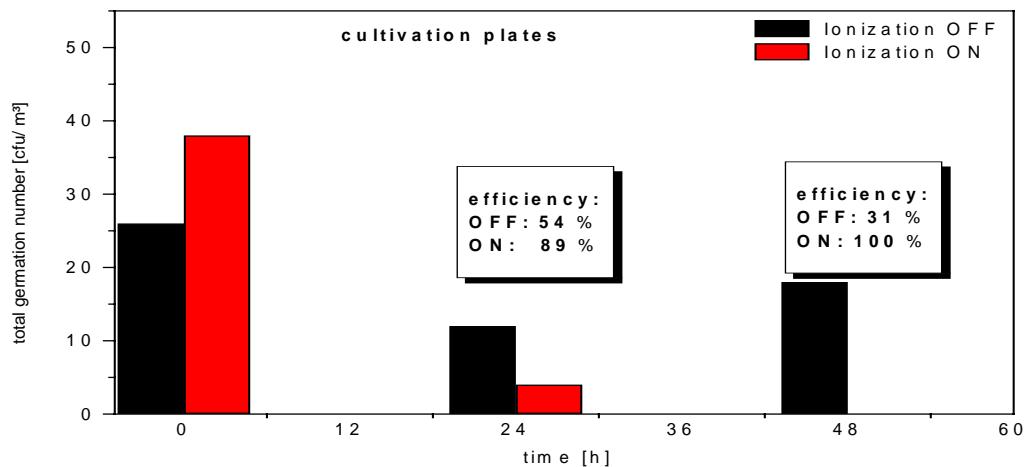
inoculation cultures:  
Penicillium notatum  
Pseudomonas aeruginosa  
Saccharomyces cerevisiae  
Staphylococcus epidermidis

All organisms were inoculated as a single culture.

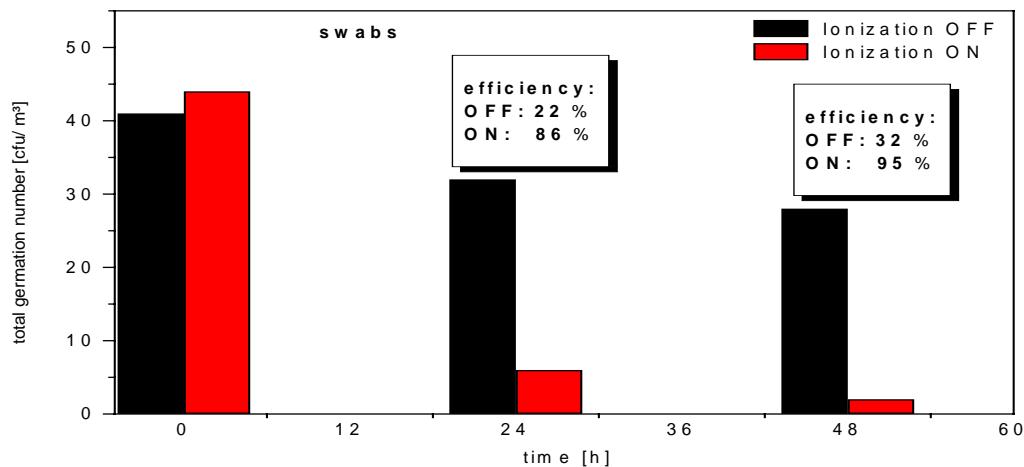
## Influence of air ionization on the reduction of germs in NORMAL AIR



A: Samples taken with AIR SAMPLER

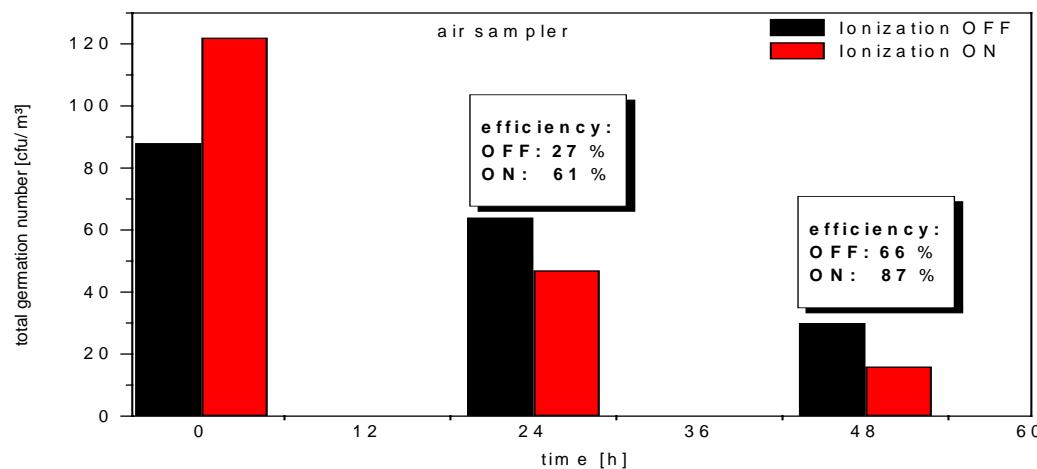


B: Samples taken with CULTIVATION PLATES

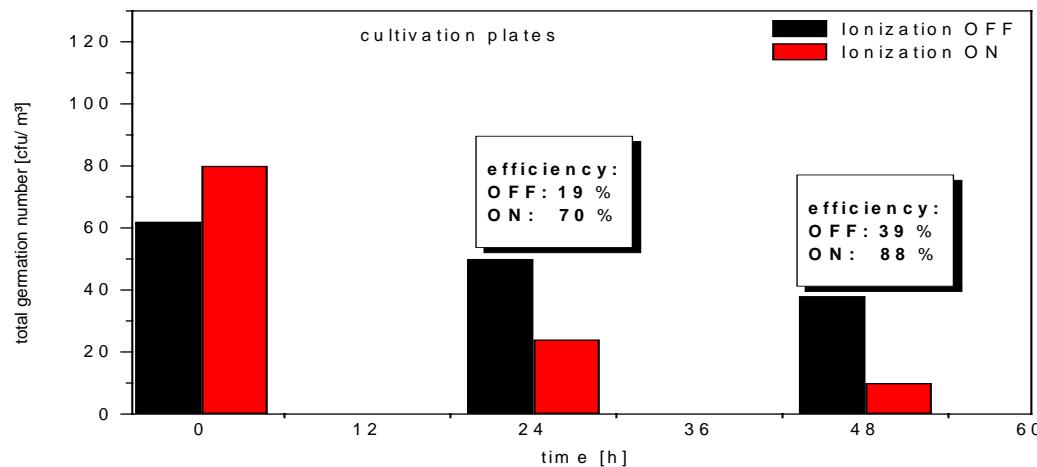


C: Samples taken with SWAPS

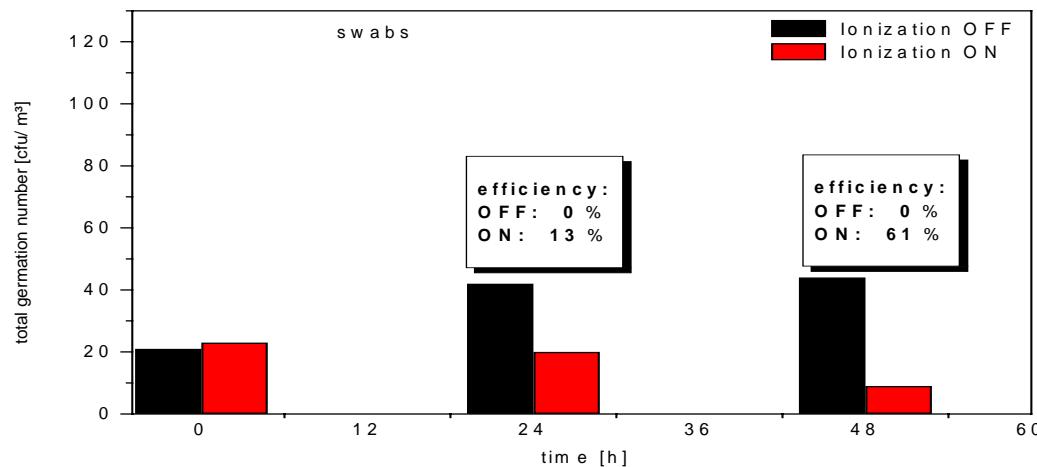
## Influence of air ionization on the reduction of **PENICILLIUM NOTATUM**



**A: Samples taken with AIR SAMPLER**

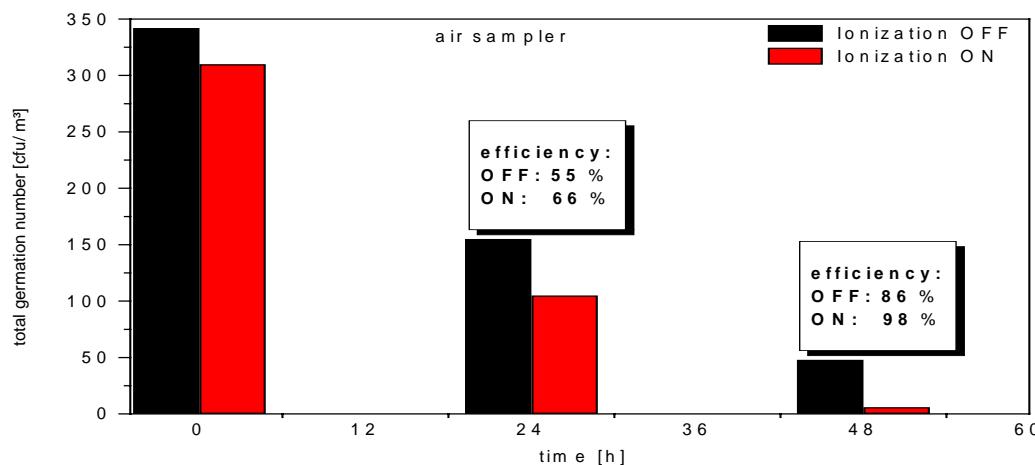


**B: Samples taken with CULTIVATION PLATES**

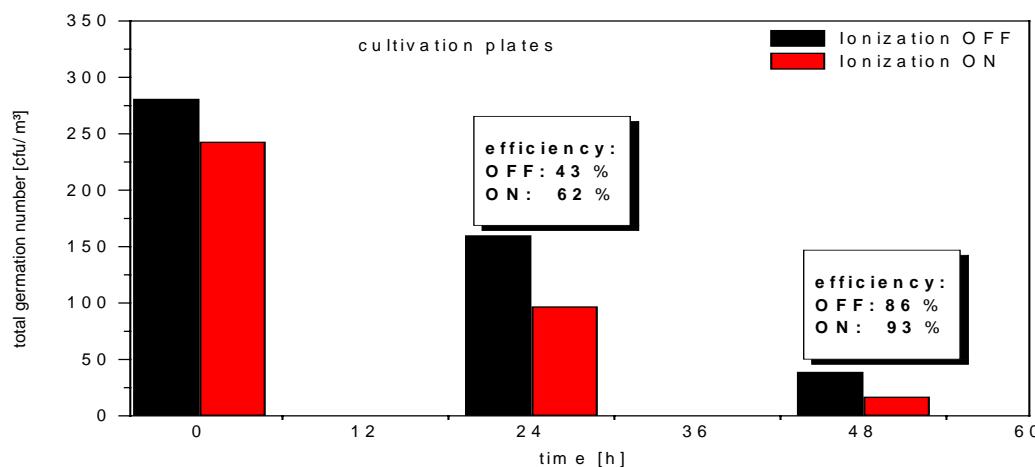


**C: Samples taken with SWAPS**

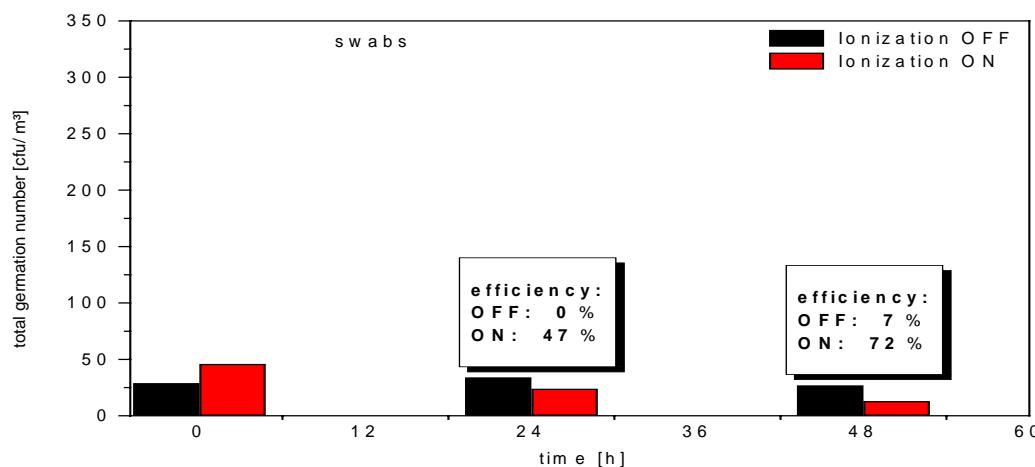
## Influence of air ionization on the reduction of PSEUDOMONAS AERUGINOSA



**A: Samples taken with AIR SAMPLER**

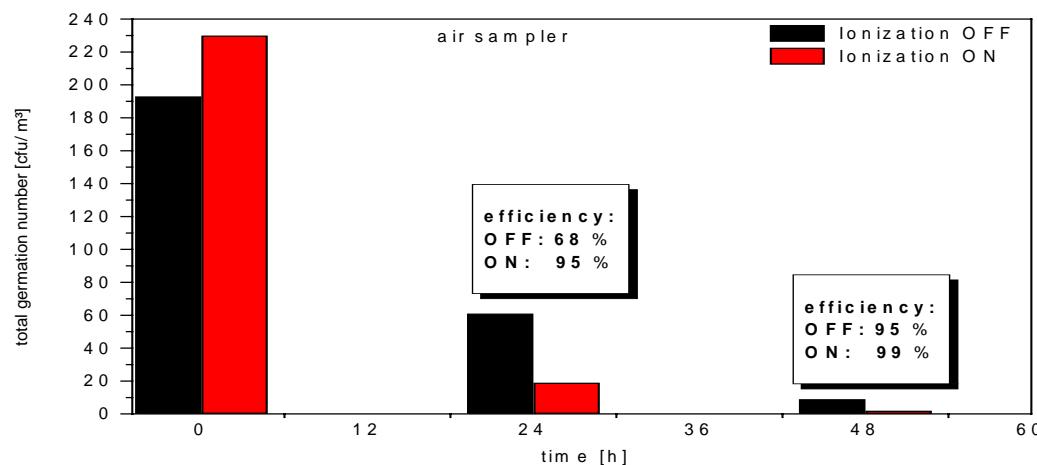


**B: Samples taken with CULTIVATION PLATES**

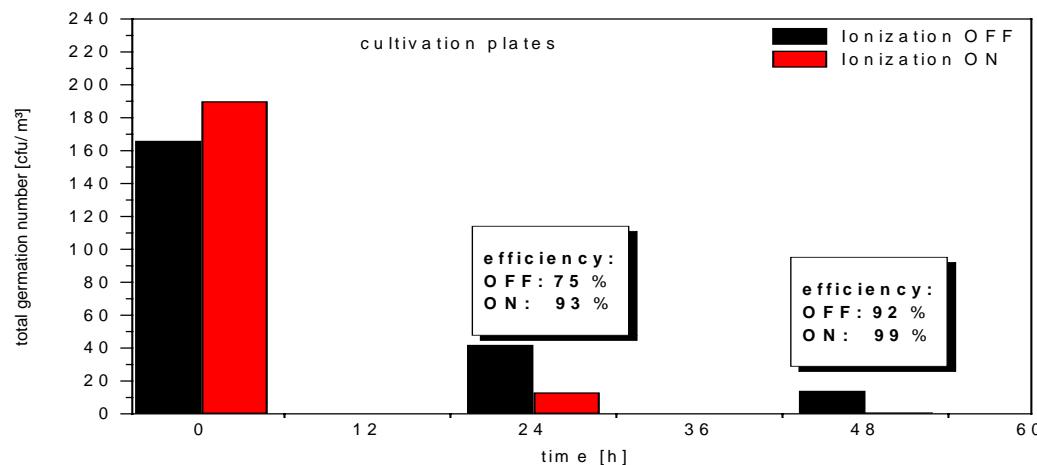


**C: Samples taken with SWAPS**

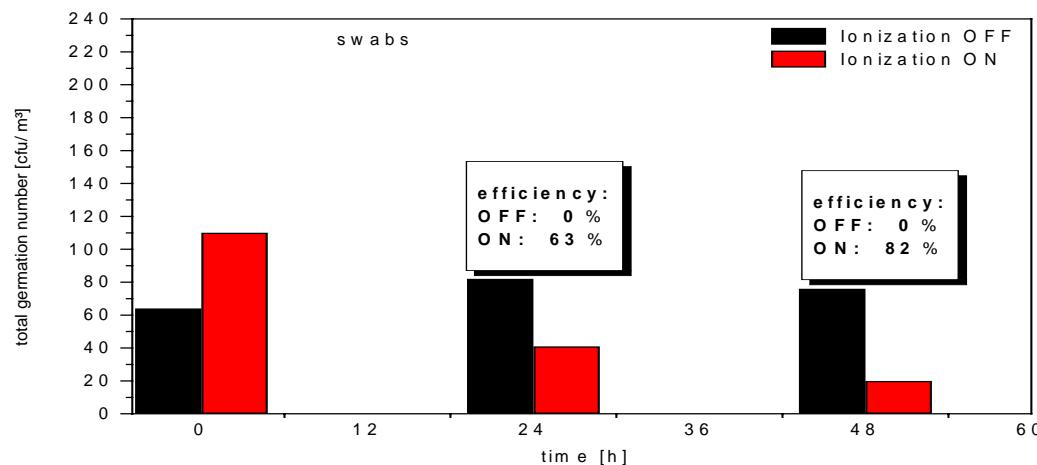
## Influence of air ionization on the reduction of *SACCHAROMYCES CEREVISIAE*



**A: Samples taken with AIR SAMPLER**

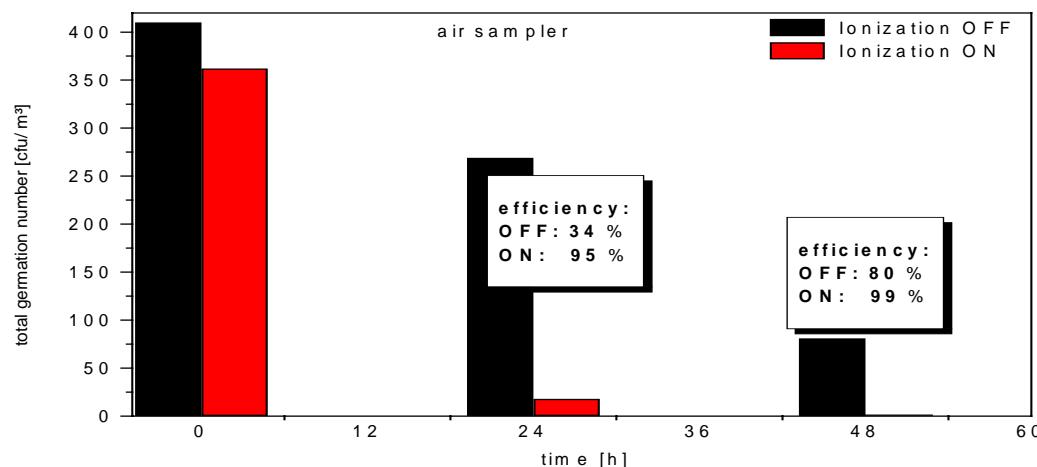


**B: Samples taken with CULTIVATION PLATES**

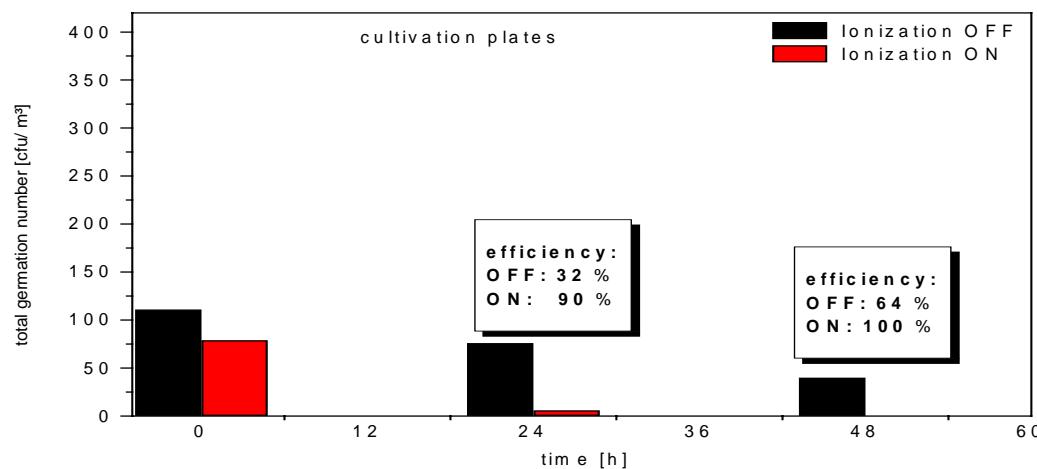


**C: Samples taken with SWAPS**

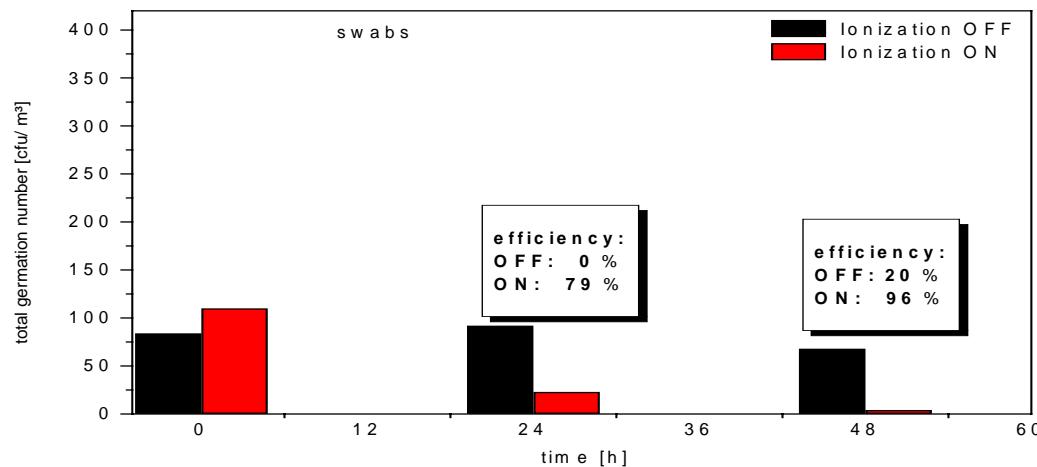
## Influence of air ionization on the reduction of STAPHYLOCCUS EPIDEMIDIS



**A: Samples taken with AIR SAMPLER**



**B: Samples taken with CULTIVATION PLATES**



**C: Samples taken with SWAPS**

## SUMMARY

Bacteria	Efficiencies after 48 h Ionization ON [%]		
	Air sampler	Cultivation Plates	Swaps
Normal Air	98	100	95
Penicillium Notatum	87	88	61
Pseudomonas Aeruginosa	98	93	72
Saccharomyces Cerevisiae	99	99	82
Staphylococcus Epidemidis	99	100	96
<b>Average efficiencies:</b>	<b>96</b>	<b>96</b>	<b>81</b>

**Average reduction of germs in air:** **96 %**

**Average reduction of germs on surfaces:** **81 %**