

October 03, 2017

Lab reference: MBL13730ET-fabric

Iotex Anti-infection Products Inc.
42 Columbia Road
Barrie, Ontario
(Attn: Larry Miller or Ron Diamond)

Dear Larry and Ron,

Re: Testing of Iotex Anti-infection Fabric for Control of Bacterial Growth

As per your request, Mold & Bacteria Consulting Laboratories tested the Iotex Anti-infection fabric for control of bacterial growth.

The Iotex Anti-infection fabric inhibited the growth of *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Streptococcus pneumonia* and *Esherichia coli*.

The test procedure and the findings are presented in the next pages.

Sincerely,

Jackson Kung'u, PhD
Principal Microbiologist
Mold & Bacteria Consulting Laboratories (MBL) Inc.

Tested by: Dr Georget Shamoon, PhD.

Reported by: Dr. Jackson Kung'u, PhD.

Efficacy Testing for Iotex Anti-infection fabric

1. Purpose of the Test

The purpose of the test was to determine the efficacy of Iotex anti-infection fabric against bacterial growth.

2. Materials and Methods

2.1 Test products

Iotex anti-infection fabric

2.2 Bacteria Test Strains

- a) *Pseudomonas aeruginosa* (ATCC 15442),
- b) *Staphylococcus aureus* (ATCC 6538),
- c) *Streptococcus pneumonia* (ATCC 49619) and
- d) *Esherichia coli* (ATCC 25922).

3. Procedure

The bacteria strains were grown overnight and a bacterial cell suspension for each strain prepared. The suspension was adjusted to 1.5×10^8 cells per ml using McFarland Latex Turbidity Standards. After adjusting the cell concentration, 0.1 ml of the cell suspension was spread uniformly on TSA agar plates using spreaders.

Pieces of the Iotex anti-infection fabric were then cut and laid on the inoculated TSA agar plates. All the plates were then incubated at 36°C for 36 hours.

4. Results

After 24 hours of incubation, clear inhibitions zones were observed on plates with pieces of the Iotex anti-infection fabric. The zones remained even after 36 hours of incubation (see figure 1).

5. Discussion and Conclusions

The test has demonstrated that the Iotex anti-infection fabric is effective in the control of *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Streptococcus pneumonia* and *Esherichia coli*.

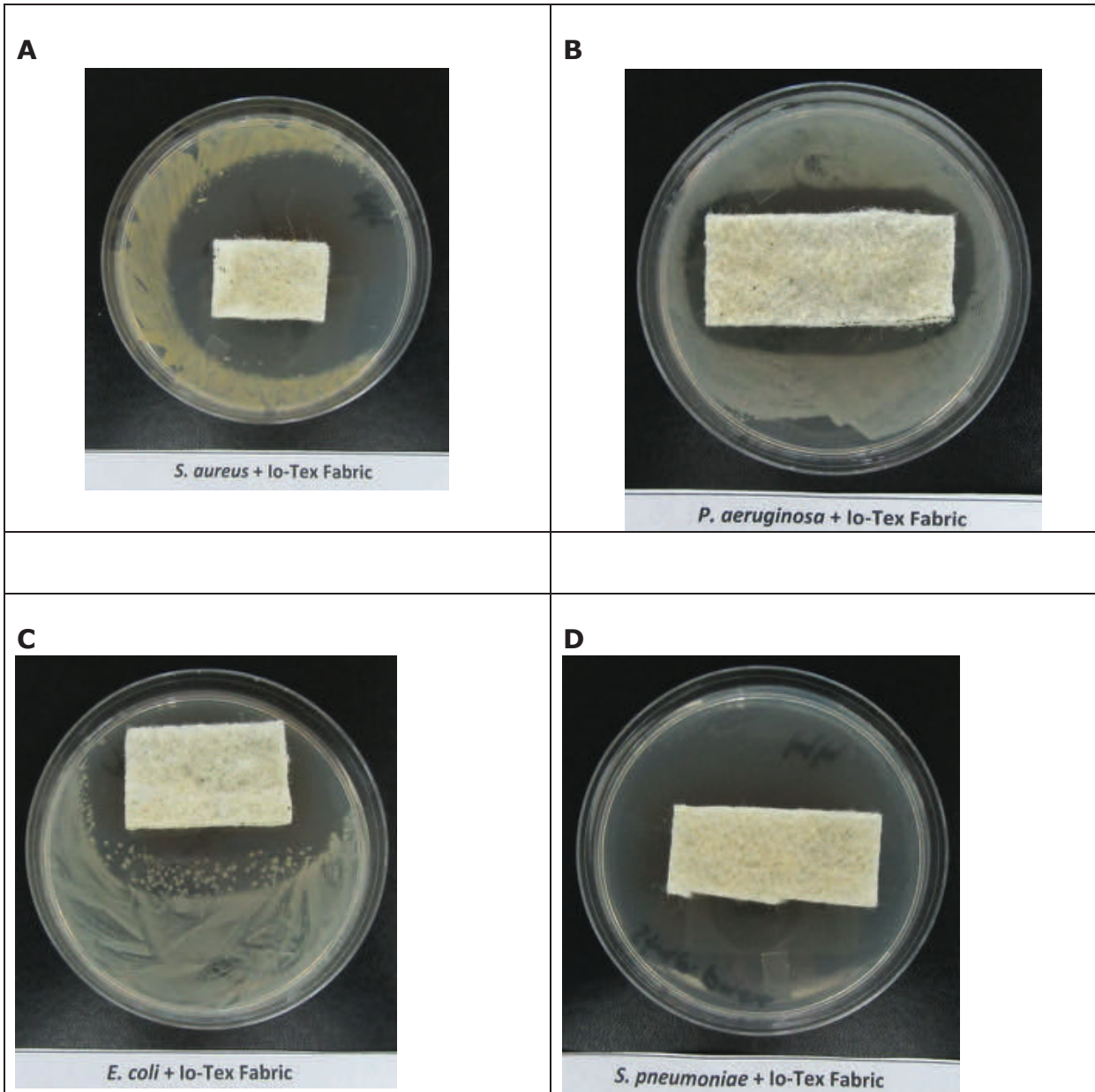


Figure 1: IOTEX anti-infection fabric test. The test bacteria are (A) *Staphylococcus aureus*, (B) *Pseudomonas aeruginosa*, (C) *Escherichia coli* and (D) *Streptococcus pneumoniae*.

References

1. ASTM E2722 – 14. Standard Test Method for Using Seeded-Agar for the Screening Assessment of Antimicrobial Activity in Fabric and Air Filter Media

PHILIP F. STUART MEDICINE PROFESSIONAL CORPORATION
Ontario corporation number 002102025
75 THE DONWAY WEST, SUITE 502
TORONTO, ONTARIO M3C 2E9
Telephone 416-447-3324 Fax. 416-447-3317

ANTIBACTERIAL FABRIC TEST

INTRODUCTION:

Io-Text in collaboration with DSMI has created a prototype fabric with antimicrobial properties. It is intended that the fabric will be developed into a wound dressing.

PURPOSE:

To test the efficacy of the fabric in preventing bacterial growth.

EXPERIMENTAL:

Bacterial culture plates (Petri dishes) charged with 5% sheep's blood in nutrient agar were heavily seeded with bacterial cultures to effect what would be confluent growth over the surface.

The organisms so-planted were:

Set 1 – Methicillin-resistant Staphylococcus aureus (a clinical isolate).

Set 2 – Pseudomonas aeruginosa.

Set 3 – Streptococcus pyogenes Group A.

Set 4 – Escherichia Coli.

After inoculation of the agar plates, a 2 cm x 6 cm strip of the test fabric was laid flat in the center of each plate.

EXPERIMENTAL: - Cont'd.

The plates were incubated for 48 hours aerobically excepting those with Streptococcus which were incubated in a CO₂ incubator.

The plates were inspected at 24 and 48 hours, the growth pattern recorded and the fabric strips were removed. They were then reincubated for an additional 24 hours and inspected.

RESULTS:

Control plates showed confluent growth of the respective bacterial species over their entire surfaces.

All of the plates containing the fabric strips showed absolute inhibition of any bacterial growth both on the fabric and for a zone of approximately 1.5 cm completely around the perimeter of the fabric both at 24 and 48 hours.

The full zone of inhibition was maintained during secondary incubation after removal of the fabric strips.

**CONCLUSION AND
DISCUSSION:**

The antimicrobial fabric completely inhibited and maintained inhibition of all four species of bacteria tested, both at the site of application and for a distance of 1.5 cm around the site. The species chosen included two common aggressive wound-infecting Gram positive species (the Streptococcus and the Staphylococcus) and two Gram negative organisms with wound-infective potential.

The Methicillin-resistant Staphylococcus aureus and the Pseudomonas were chosen for the test, not only because of their potential in wounds, but, because both species are highly resistant to common antimicrobial drugs.

As well as Pseudomonas, which is a highly mobile species, failed to spread into the zone of inhibition when the fabric was removed

Philip F. Stuart MD, PhD., F.R.C.P.©

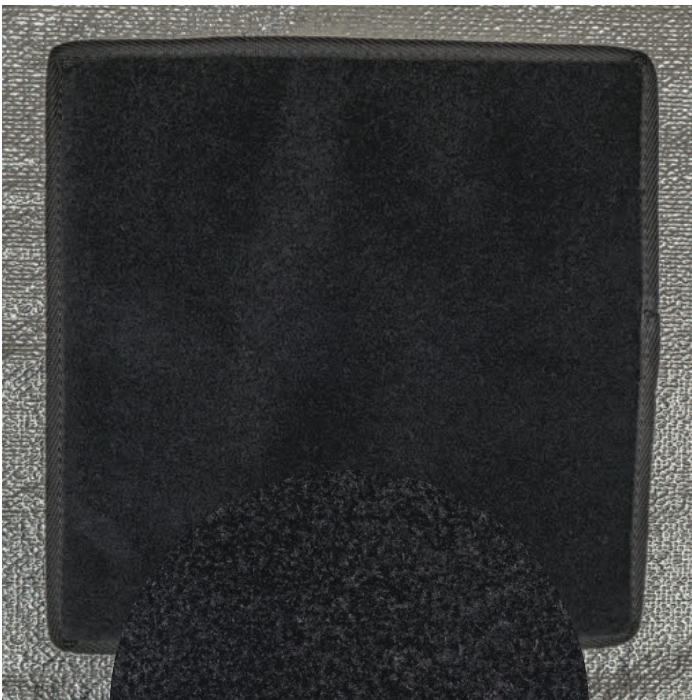
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Anti-Infection Products Inc.

IOTEX™: Anti-Infection Floor Covering

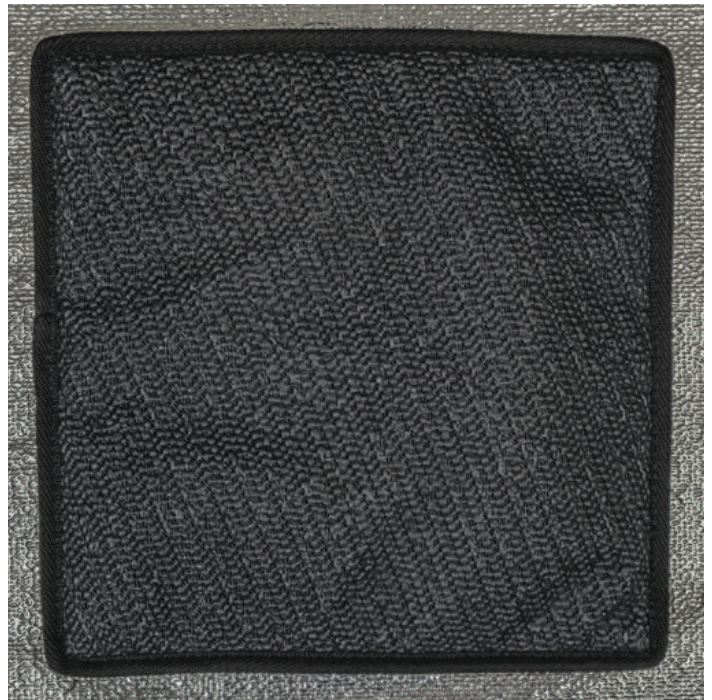
A Soft Surface Infused With the IOTEX™ Anti-Microbial Chemistry

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- To prevent post surgical incisions from becoming infected
- To be used where the concern for spreading foot-bearing infections in gyms and other areas where there is a large number of people using a shared facility
- The floor covering is easy to wash and very quick drying
- A non-slip rubberized under-coating
- Safe for people and pets and the environment

Top Surface



Under-coating



Top Surface Detail