

IOTEX™
Anti-Infection Products Inc.

Seal & Heal



Original Injury
A Dog Bite
Jul 4, 2017 6:00PM



24 hours after application of
IOTEX™ Anti-Infection Fabric
on the dog bite



Approximately 48 hours
after application of the
IOTEX™ Anti-Infection Fabric
on the dog bite

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 pneumoniae* (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 pneumoniae* and *Esherichia coli*.

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ANTIBACTERIAL FABRIC TEST

INTRODUCTION:

Io-Tex 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, the *Pseudomonas*, which is a highly mobile species, failed to spread into the zone of inhibition when the fabric was removed.

It is logical that a modified fabric designed for wound dressings would sterilize and maintain sterility at the site and consequently prevent wound infection