endovision
infinite vision of the medical device

# DUAL TULIP

HR-Chitosan hydrofiber hemostatic dressing

## Topical Hemostatic & Anti-microbial & pH-Regulating dressing for gynecology

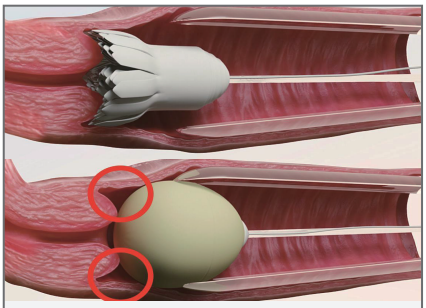

### Indication

- Conization
- Cervix cancer examination
- Female inspection
- Hysterectomy

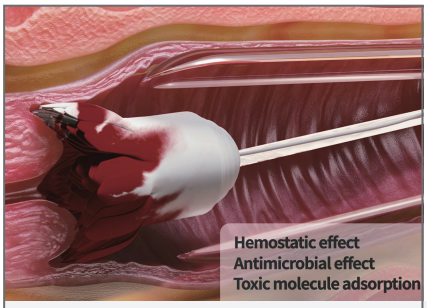
| Brand Name | DUAL TULIP V |
|---|---|
| Model No. | DTV0220200P |
| Size (cm) | Dressing Ø2.0 x 4.5 |
| Packing | 10 PACKS/Box |

### Feature & Benefit

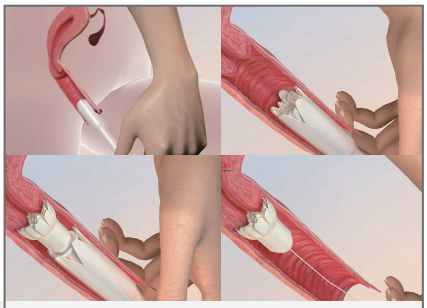
| Feature | Benefit |
|---|---|
| Dressing Type / Dressing with Applicator Type | · Easy to insert and remove<br>· Using Applicator, insert and remove easily by patient-self<br>· Minimize friction when removing dressing (40% reduction in diameter) |
| HR-Chitosan - Multifunctional biomaterial | · Strong Hemostatic · Maintaining pH balance · High absorption (20 times than the weight)<br>· Anti-microbial effect · Anti-inflammatory |
| Anti-microbial effects | · 99.9% anti-bacterial activity against force in Escherichia coli / Pseudomonas aeruginosa / Staphylococcus aureus / Candida albicans / Super bacteria (MRSA) |
| With 134 pieces of flower petals | · Applicable to the atypical bleeding sites |
| Semi-gelation | · Moisturizing effect, Maintaining pH balance |
| Developed with Gynecologist and Patient together | · Perfect design and function for protecting the cervix environment |



Applicable to the atypical bleeding sites




Hemostatic, Anti-microbial, Anti-inflammatory



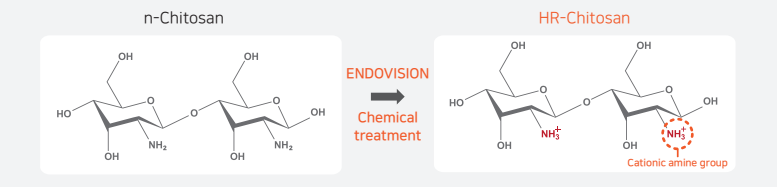
Easy to insert and remove

Cat-DUAL TULIP-K202

endovision
infinite vision of the medical device
66-26, Dongnae-ro, Dong-gu, Daegu, Rep. of Korea(41061) T. +82-53-751-1955 / F. +82-53-751-1964
E-mail. endosales@endovision.co.kr / www.endovision.co.kr

# ENDOVISION HR-Chitosan

## (Hydron Reinforced Chitosan)

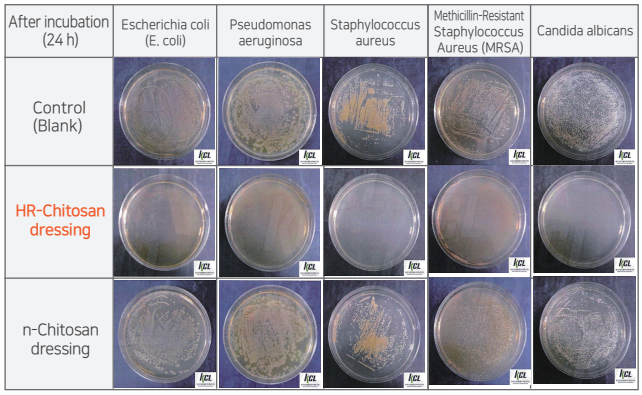


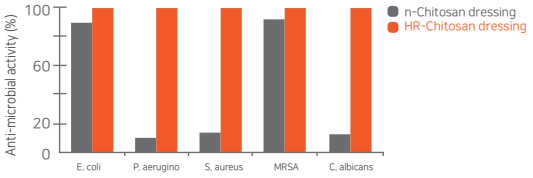

ENDOVISION'S Hemostatic wound dressing products are made of HR-Chitosan (Hydron Reinforced Chitosan) as the base material. HR-Chitosan, developed as a patented ENDOVISION's chemical treatment process, is chitosan with enhanced positive changes which can be main factors improving chitosan's functions including hemostasis, anti-microbial activity, toxic molecule adsorption, high absorption and moisturizing effect.

## 5 Effects of HR-chitosan

### Anti-microbial

99.9% anti-bacterial activity against force in Escherichia coli / Pseudomonas aeruginosa / Staphylococcus aureus / Candida albicans / Super bacteria (MRSA)

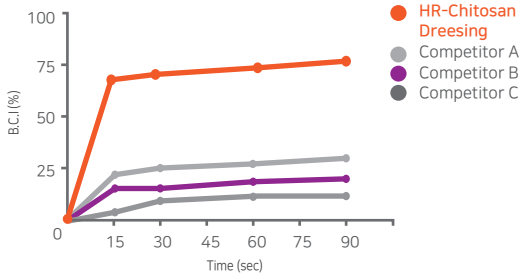



| Anti-microbial activity (%) | Control | HR-Chitosan dressing | n-Chitosan dressing |
|---|---|---|---|
| Escherichia coli (E. coli) | - | 99.9 | 88.4 |
| Pseudomonas aeruginosa | - | 99.9 | 8.3 |
| Staphylococcus aureus | - | 99.9 | 12.5 |
| MRSA | - | 99.9 | 11.3 |
| Candida albicans | - | 99.9 | 91.3 |

### Strong Hemostatic

Rapid Bleeding Control through interaction with Positive and negative charge

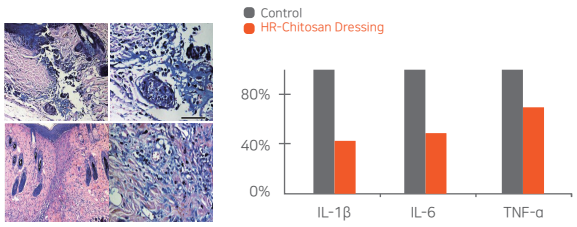



※ Blood Clotting Index (B.C.I) = 100 - ( $\frac{OD_t}{OD_b}$ x100(%))

- $OD_b$ : Average absorbance of blank
- $OD_t$ : Average absorbance of sample

### Anti-Inflammatory

Suppresses up to 60 % or more of the expression level of inflammatory cytokines

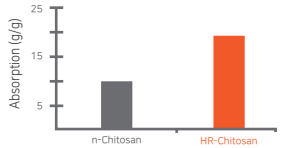



| Group | IL-1β | IL-6 | TNF-α |
|---|---|---|---|
| Control | 1 | 1 | 1 |
| HR-Chitosan dressing | 0.365 | 0.432 | 0.663 |

### High Absorption and Moisturizing

More than 20 times absorption and moisturizing effect than product weight

| Absorption (g/g) | HR-Chitosan dressing | n-Chitosan dressing |
|---|---|---|
| #1 | 23.56 | 9.33 |
| #2 | 20.82 | 10.29 |
| #3 | 21.00 | 10.35 |
| #4 | 20.03 | 10.45 |
| Average | 20.640 | 10.105 |




※ Absorption (g/g) = (W2-W1) / W1

W1: Initial weight (g)
W2: Absorbed weight after 30 min.

### Toxic molecules adsorption

More than 99.8% of Ammonia generated by proteolysis can be deodorized

| Deodorization (%) | Ammonia | Trimethyl amine |
|---|---|---|
| HR-Chitosan dressing | 99.8 | 25.9 |
| n-Chitosan dressing | 45.7 | 8.8 |