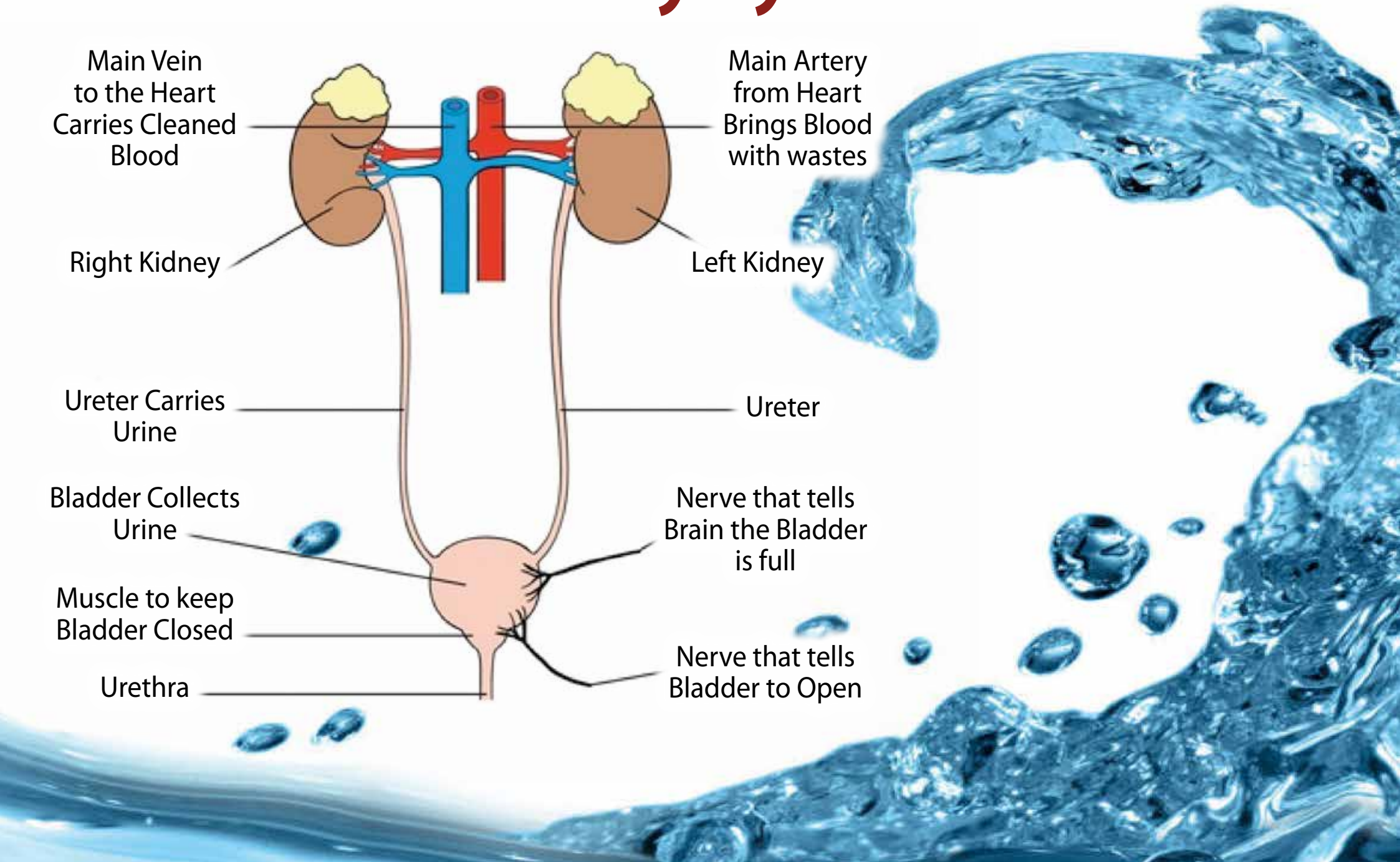
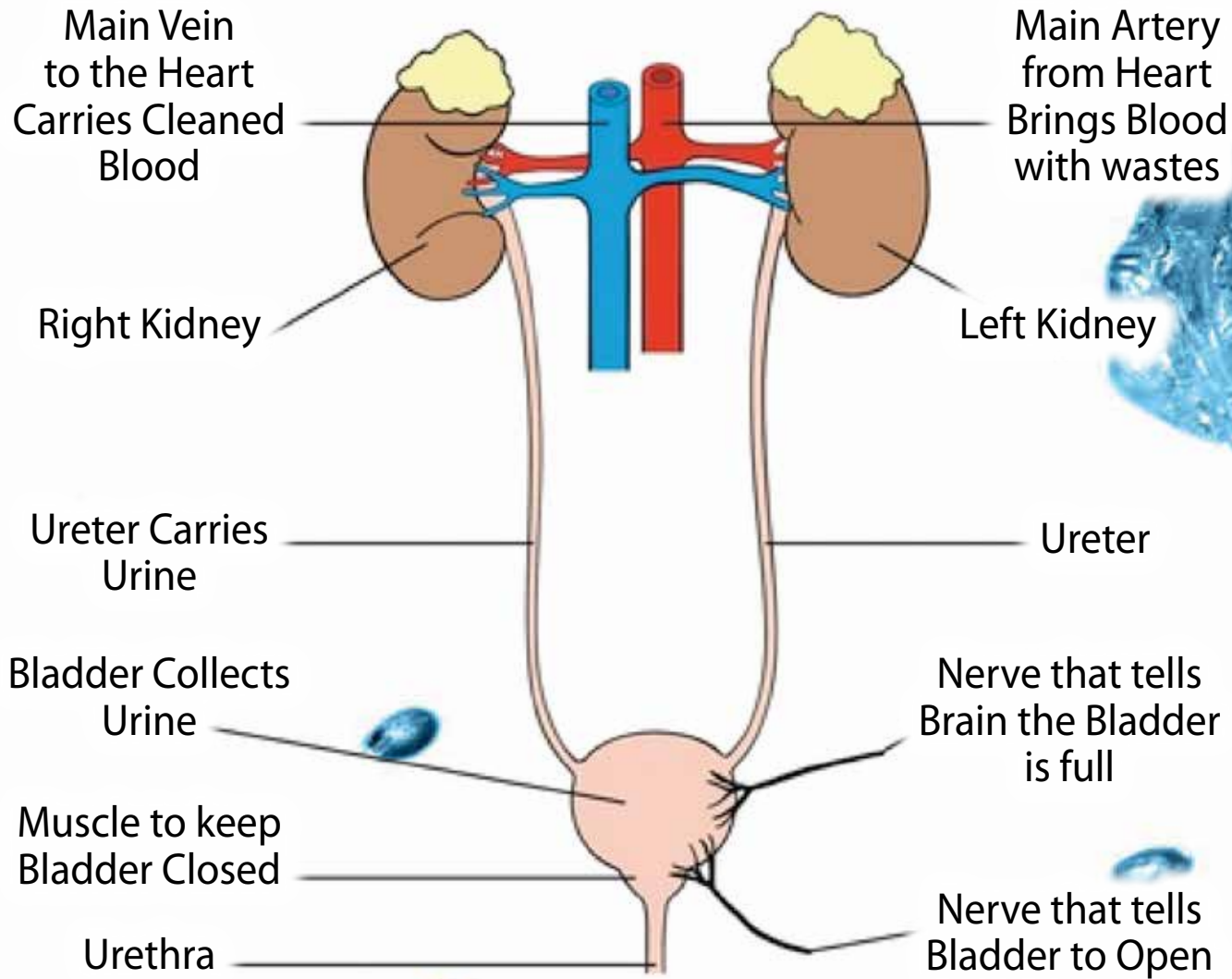


The urinary tract infection (UTI) is a bacterial inflammatory process that affects the urinary tract system.

Infections of the urinary tract are the second most common type of infection in the human body.

Urinary system



The most common organism
implicated in UTIs is
ESCHERICHIA COLI.

E.coli is the cause in about
80-85% of the all UTI cases;
Staphylococcus saprophyticus is
the cause in 5–10 %.



Causes of urinary tract infections

- Weakened immune system
- Failure to comply with hygiene
- Wet, soggy feet
- Increased sexual activity, including oral sex
- Other vaginal diseases or vaginal bacterial imbalance, structural abnormalities





Symptoms of the urinary tract infection

- **Urgent** and **frequent** need (every 20 to 30 minutes) to **go to the toilet**
- **Urination** process is **painful**
- Back or low **abdominal pain**
- Cloudy, dark, **unpleasant-smelling urine** or urine with blood contamination
- Possibly increased **temperature**
- Urinary incontinence may also occur



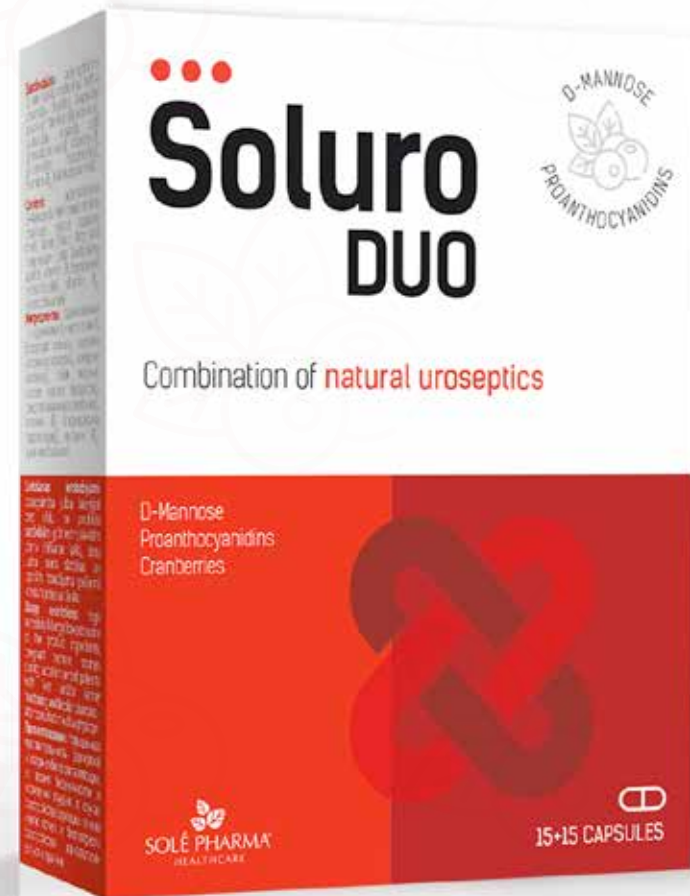
Women encounter **urinary** tract **infections** **more often than men**, which can be explained by the differences in anatomical structures.

One in three women will experience a clinically significant (UTI) **by** age **twenty-four** and almost half **will** have at least one **in** their **lifetime**.

In studies women with a UTI were found to **have** a **recurrence** within 6 months, and **3%** had **two** recurrences.

Choose the best option

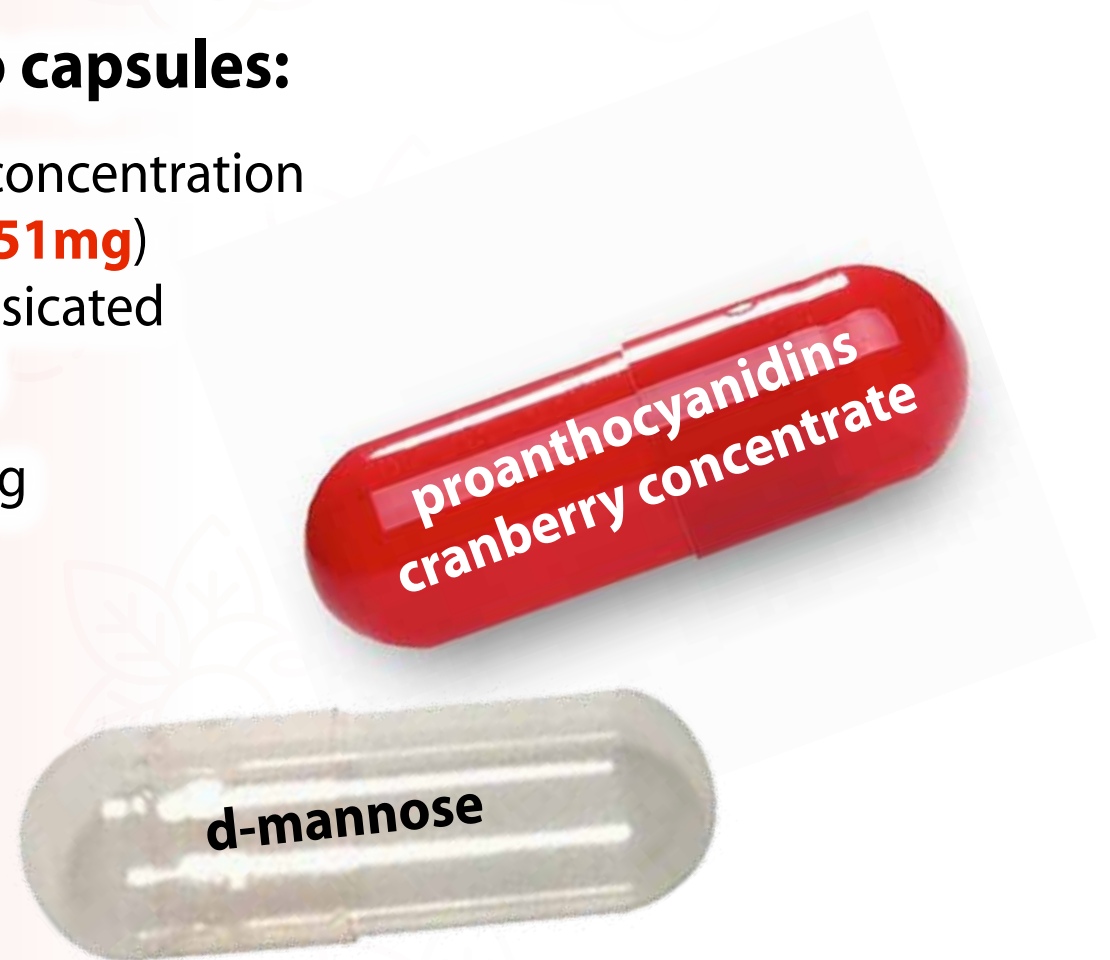
...
**Soluro
DUO**



Composition of Soluro DUO

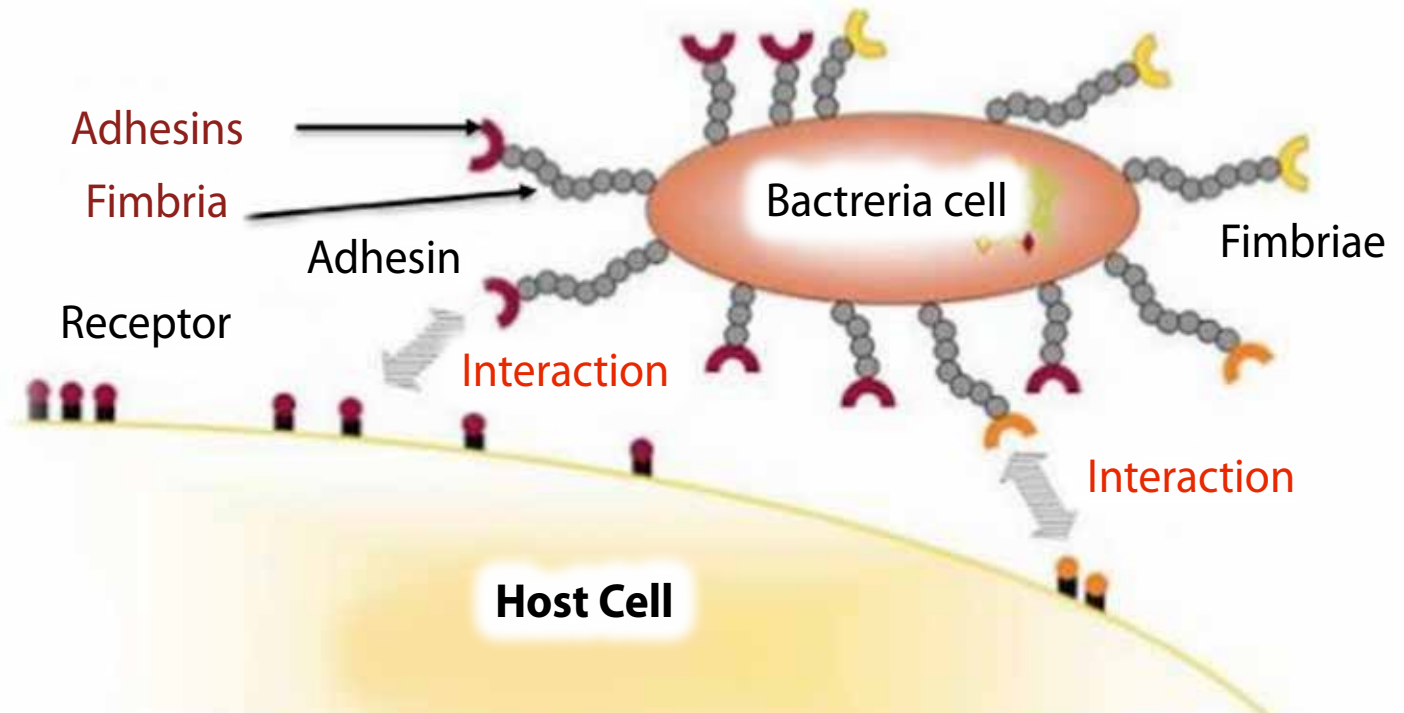
Soluro DUO consists of two capsules:

- **Swed orange capsule** - high concentration of **proanthocyanidins** (PAC / **51mg**) in a combination with cryodessicated **cranberry concentrate** (10:1)
- **Transparent capsule** – 500 mg **d-mannose**



Attachment of *E.Coli* to uroepithelium

- E. Coli has hair-like producing fimbria on their surface
- Fimbria produces **2 adhesins** (mannose sensitive – **type 1** and mannose resistant – **type P**)
- Through these adhesins, bacteria attaches to the specific receptors on uroepithelial cells



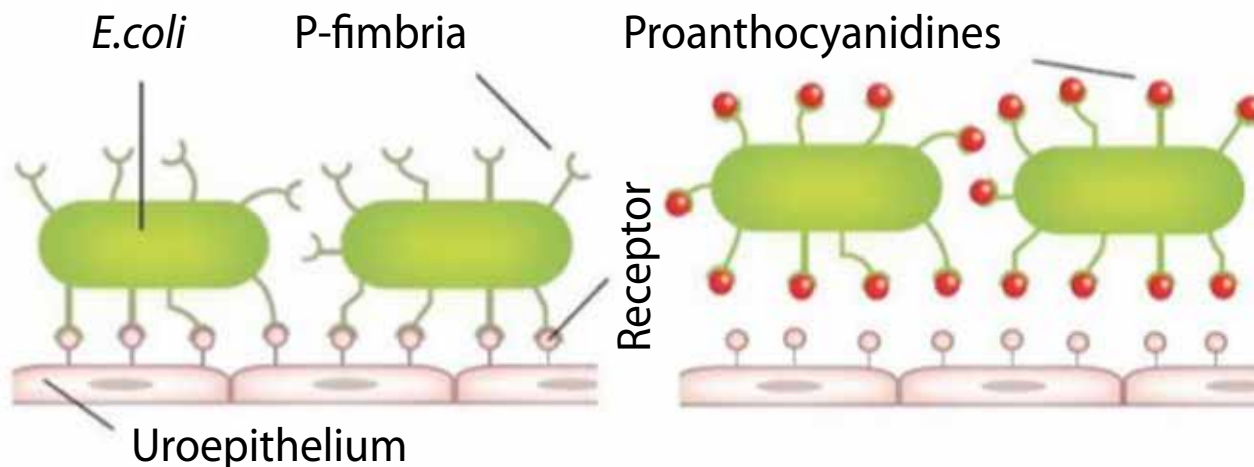
••• Soluro DUO Proanthocyanidins

Proanthocyanidins (PAC) + **cryodessicated cranberry** concentrate



prevent E.coli bacterial adhesion

Proanthocyanidines from cranberry inhibits the mannose-resistant adhesins (P-fimbriae) of uropathogenic *E.coli*.

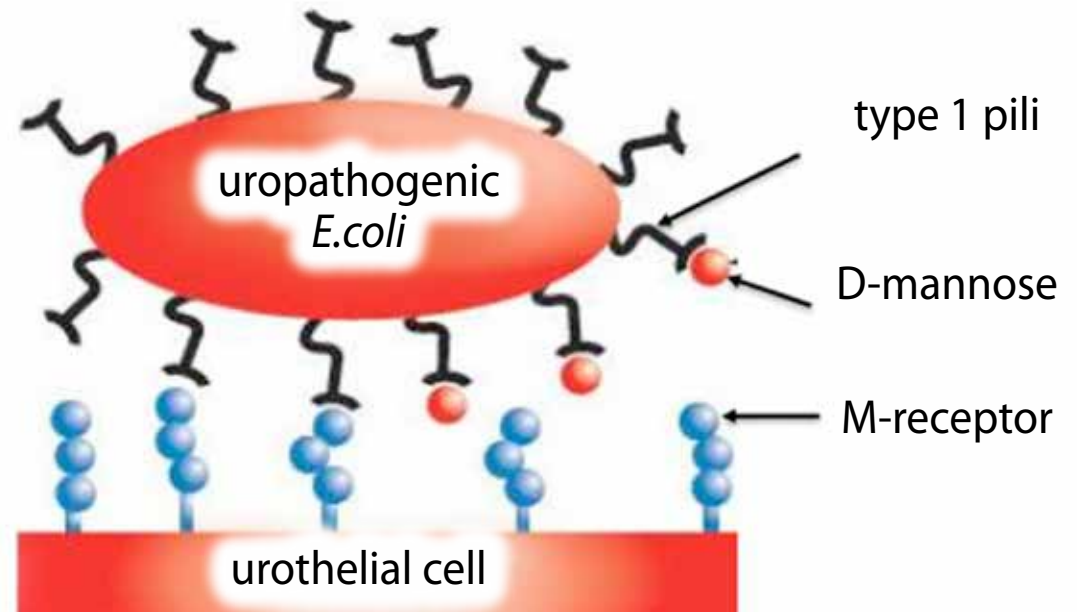


Soluro DUO

D-mannose

D-mannose is a **simple sugar** that **prevents adherence** of certain bacterial strains to uroepithelial cells of the bladder - prevents the bacteria (*E.Coli*) from sticking to the walls of the urinary tract, and thus allowing them to be easily eliminated with urination.

D-mannose binds to the type 1 pili of bacteria blocking their adhesion to uroepithelial cells



Hung CS. **Structural basis of tropism of Escherichia coli to the bladder during urinary tract infection.** Mol Microbiol. 2002 May;44(4):903-15.

Head KA. **Natural approaches to prevention and treatment of infections of the lower urinary tract.** Altern Med Rev. 2008 Sep;13(3):227-44.

A microscopic view of numerous rod-shaped E. coli bacteria, appearing as textured, brownish-orange cylinders against a light pinkish background. The bacteria are scattered across the frame, with some in sharp focus and others blurred in the background.

... Soluro DUO D-mannose

D-Mannose has been proven to not only block bacterial adhesion on uroepithelial cells, but also antagonize invasion and biofilm formation, effectively inhibiting the colonization of bacteria on the mucosal surfaces of the genitourinary tract.

- Very little of it is metabolized (does not interfere with blood sugar regulation - **safe for diabetics**).

Wellens, A. Intervening with urinary tract infections using anti-adhesives based on the crystal structure of the FimH-oligomannose-3 complex.

PLoS One Vol. 3, No. 4, e2040 (2008): 1–13.

Bouckaert, J. Receptor binding studies disclose a novel class of high-affinity inhibitors of the Escherichia coli FimH adhesin." Molecular Microbiology Vol. 55, No. 2 (2005): 441–455.

... Soluro DUO Nordic Forest Cranberries

- Highly effective wild **berries** from Nordic forests **rich with flavonoids** and **antioxidants** as well as various acids
- Unique production process – cryodesiccation – saves 100% active substances
- Milled with bark and pulp – **higher concentration** and **bioavailability** (up to **100%**)



••• Soluro DUO

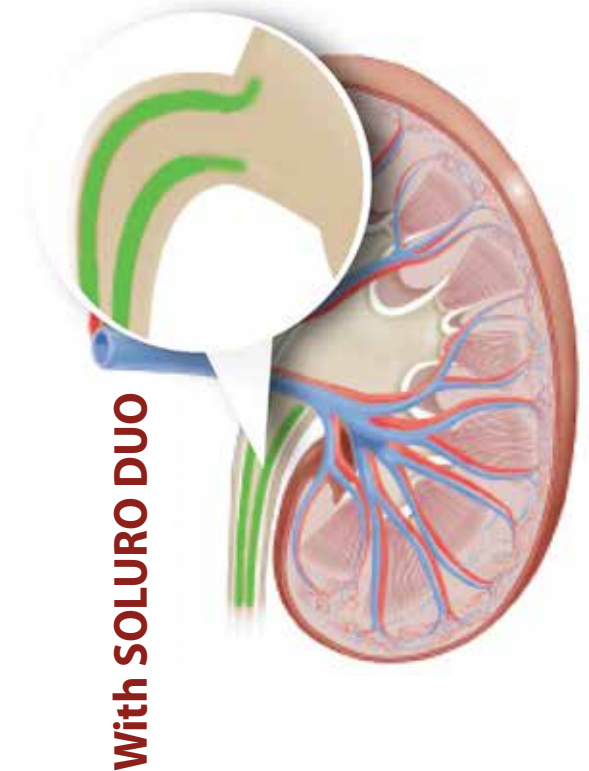
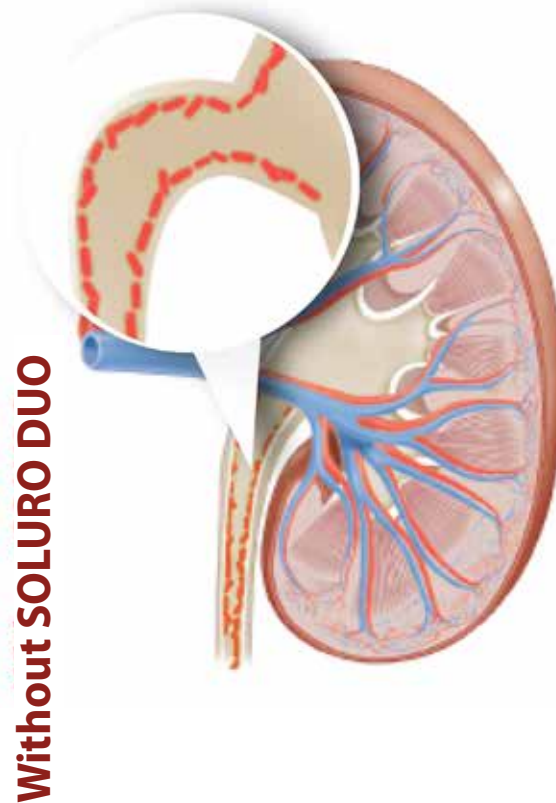
Nordic Forest Cranberries

(Vaccinium macrocarpon)



Cranberries **make urine pH** becomes more **acidic**.

Cranberries contain a substance with antibacterial activity – **hippuric acid** that doesn't let the E.coli bacteria to attach to the urinary tract walls that way **eliminating the risk of infection**.



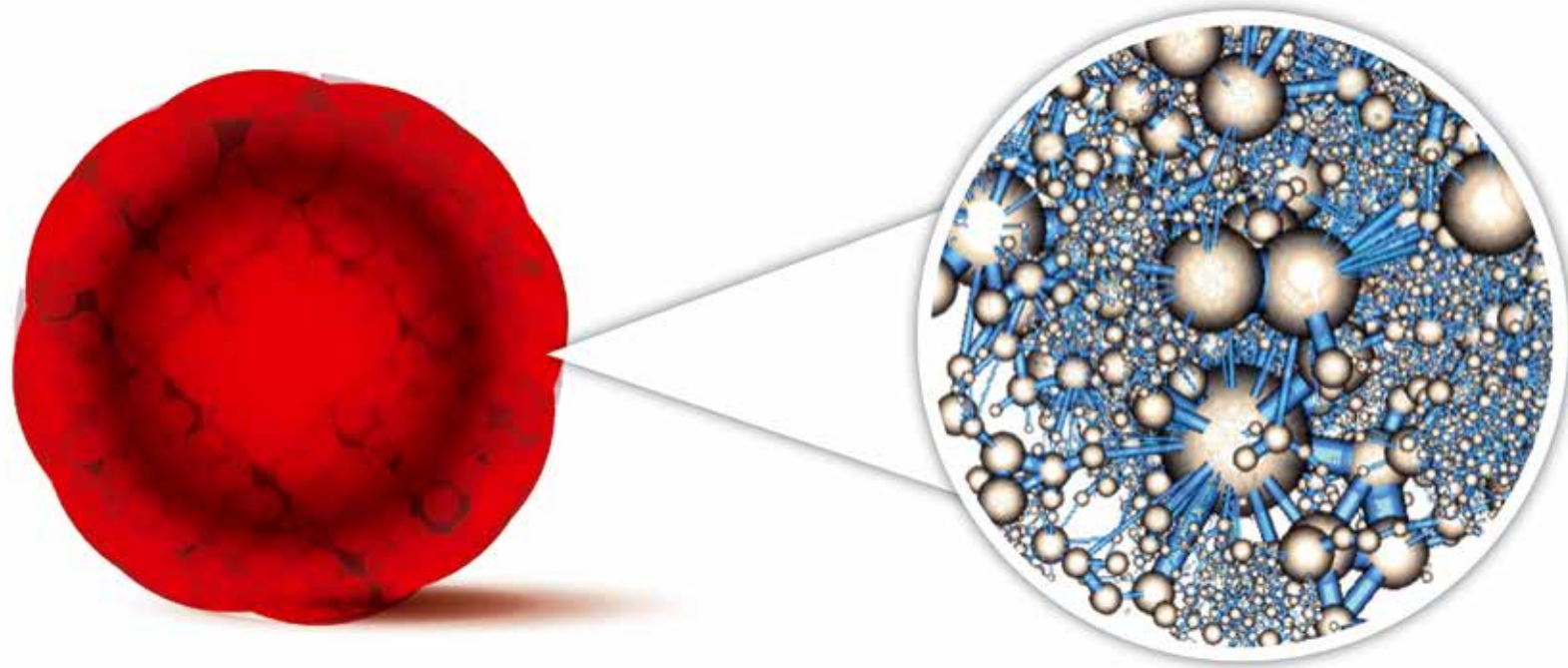
What is CRYODESICCATION?

- Cryodesiccation or known as freeze-drying / lyophilisation is a dehydration process typically used to preserve a perishable material or **make the material more convenient** for transport.
- Freeze-drying works by **freezing the material** and then **reducing the surrounding pressure** to allow the **frozen water** in the material **to sublime** directly **from the solid** phase to the **gas** phase.



What is CRYODESICCATION?

During cryodesiccation **cranberries cell** housings collapses and becomes porous



Their structure becomes like snowflakes, they become porous and thus bioavailability **increases up to the 100%** and all valuable substances becomes freely available for human body

Cryodesiccation is considered as **a reference** for manufacturing **high-quality** dehydrated **product**.

... Soluro duo Double exposure



Cranberry concentrate combined with PAC and d-mannose **are both effective** at increasing urinary **excretion of *E. Coli*** within 2–10 hours of ingestion.

Substance / <i>E.Coli</i> fimbrial receptor proteins	P-type fimbriae receptors	Type 1 fimbriae receptors
PAC	X	
D-mannose		X (mannose-sensitive)
Cranberries (hippuric acid)	X	

Foo, L.Y. **The structure of cranberry proanthocyanidins which inhibit adherence of uropathogenic P-fimbriated Escherichia coli in vitro.** *Phytochemistry* Vol. 54, No. 2 (2000): 173–181.

Krogfelt, K.A. **Direct evidence that the FimH protein is the mannose-specific adhesin of Escherichia coli type 1 fimbriae.** *Infection and Immunity* Vol. 58, No. 6 (1990): 1995–1998.

Han, Z., **Structure-based drug design and optimization of mannoside bacterial FimH antagonists.** *Journal of Medicinal Chemistry* Vol. 53, No. 12 (2010): 4779–4792.

Raz, R., **Cranberry juice and urinary tract infection.** *Clinical Infectious Diseases* Vol. 38 (2004): 1413–1419.

Conclusion

- **Natural uroseptic** / alternative to antibiotics - **bacteriostatic effect**
- Unique and highly effective composition of PAC, cryodessicated natural cranberry concentrate and D-mannose.
- High concentration of **PAC (51 mg)**
- Suitable for adults, kids, pregnant women and women during lactation period

