

Cystophan

Ingredients

Each capsule contains:

- 125mg N-acetyl D-glucosamine (100%)
- 37.5mg L-tryptophan
- 10mg Hyaluronic acid



Directions for use

The capsules can be given whole or opened and the contents sprinkled onto food. Administer according to the guidelines below for as long as considered necessary.

Weight of cat (kg)	Loading Level (for at least 2 weeks)	Maintenance Level
	Capsules per day	Capsules per day
<3kg	1	1/2 (or 1 capsule every other day)
>3kg	2	1

Cystophan provides high level support for feline urinary health

- Dual-source GAG support to maintain a strong glycosaminoglycan layer in the bladder.
- The first product to combine GAG supplements with an ingredient to maintain normal stress levels.
- Easy to administer sprinkle capsules and an artificial chicken flavour for excellent palatability and compliance.



Cystophan For Cats

High level support
for feline urinary
health



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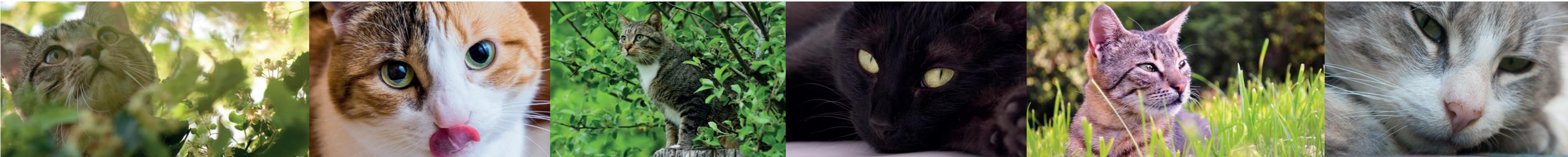
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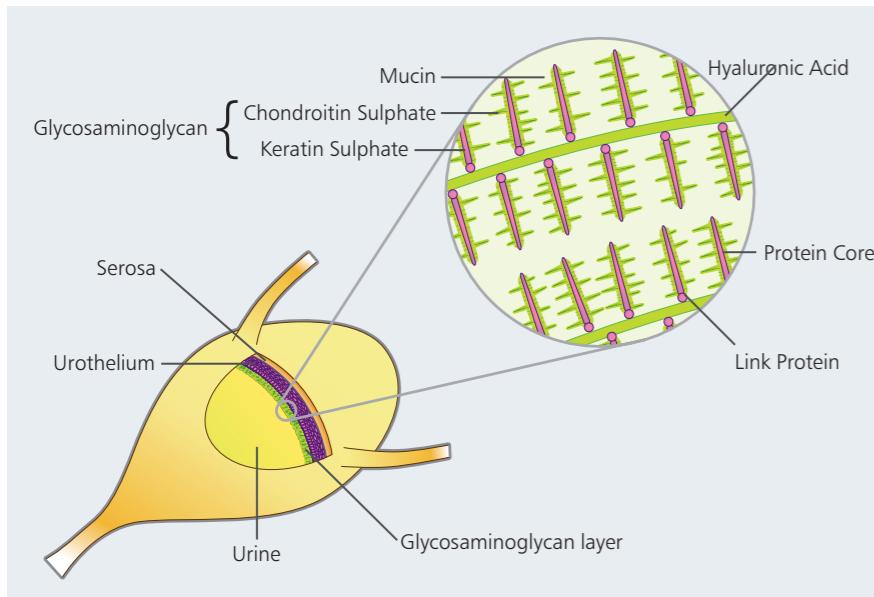
Cystophan

High level support for feline urinary health



N-acetyl D-glucosamine

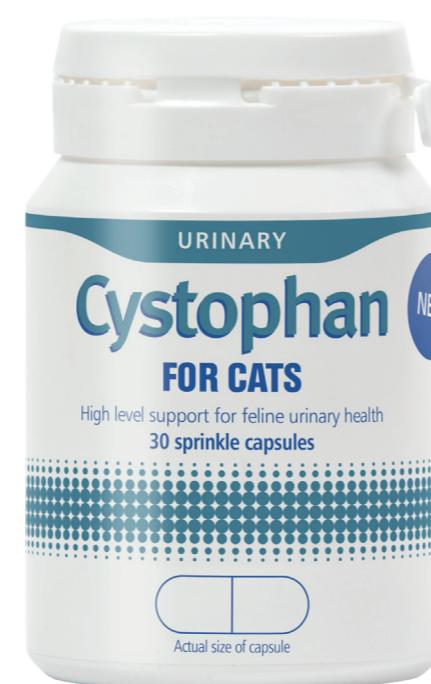
A glycosaminoglycan (GAG) precursor which acts as a building block for other GAGs (such as chondroitin sulphate).



The luminal surface of the urinary tract is covered by a protective barrier called the glycosaminoglycan layer. This layer helps prevent noxious substances within the urine from irritating the sensitive urothelium.

Hyaluronic acid

Hyaluronic acid is one of the main components of the GAG layer that lines the bladder, helping to form this protective barrier. The two main GAGs are keratin sulphate and chondroitin sulphate, which are made up of N-acetyl D-glucosamine units. The GAGs attach to a protein core, forming a proteoglycan complex which is linked to the hyaluronic acid via a link protein.

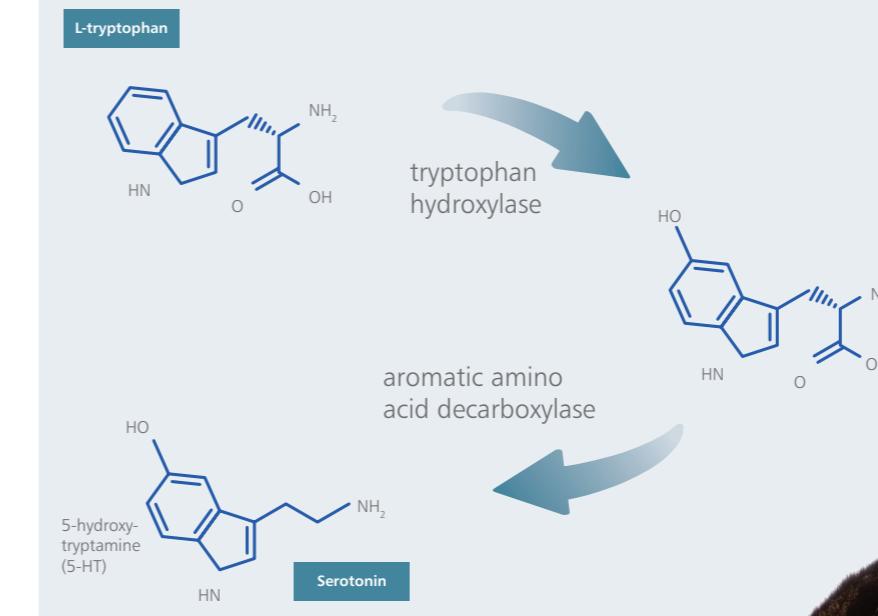


L-tryptophan & Serotonin

Serotonin has an extremely important physiological function in the body, especially in controlling anxiety. It is unable to cross the blood-brain barrier but it is possible to increase serotonin levels by supplementing L-tryptophan.

Supplemented L-tryptophan is converted by tryptophan hydroxylase and aromatic amino acid decarboxylase into 5-hydroxytryptamine (also known as serotonin).

The relationship between L-tryptophan and Serotonin



Artificial chicken flavour

For enhanced palatability.



CystoPro

Ingredients

Each capsule of CystoPro contains:

- 20mg Proanthocyanidins
- 125mg N-acetyl D-glucosamine (100%)
- Probiotic *Enterococcus faecium* PZN33 4x10⁷ CFU
- Mannanoligosaccharide
- Artificial chicken flavour



i Directions for use

Capsules can be given whole or opened and the contents sprinkled onto food.

Administer according to the guidelines below for as long as considered necessary.

Weight of pet (kg)	Capsules per day
<20kg	1 capsule
20-40kg	2 capsules
40-60kg	3 capsules



CystoPro
For Dogs and Cats

High level support for urinary health

References

1. Howell AB et al. 2010. Dosage effect on uropathogenic Escherichia coli anti-adhesion activity in urine following consumption of cranberry powder standardized for proanthocyanidin content: a multicentric randomized double blind study. *BMC Infectious Disease*. **10**: 94.

2. Howell AB, Griffin DW, Whalen MO. 2011. Standardized cranberry tablet inhibits uropathogenic bacterial adhesion in canine urine. Poster presented at *Berry Health Benefits Symposium*.



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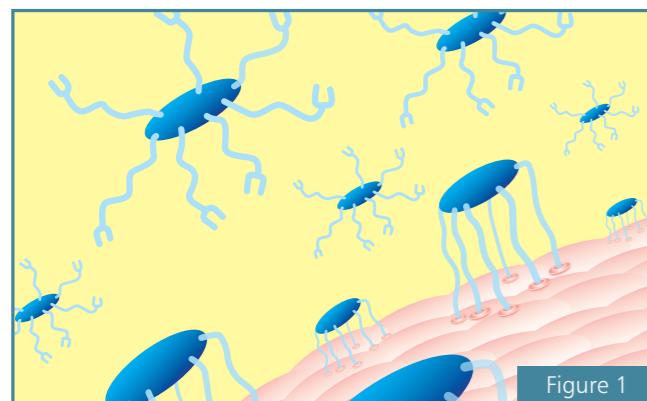
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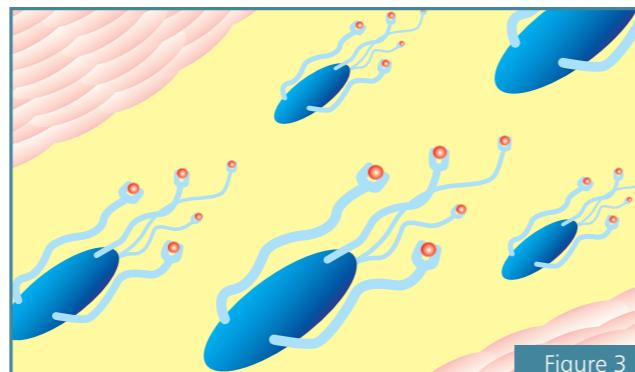


Proanthocyanidins

Proanthocyanidins (PACs) are a class of biologically active flavonoids and are one of the most potent antioxidants in nature. PACs are sourced from the North American cranberry, *Vaccinium macrocarpon*, and they are unique in that they contain A-type linkage versus the B-type linkage found in many other PACs. This linkage is thought to contribute to the anti-adhesion activity of the PACs which reduces the ability of *E.coli* to attach to the urothelium, thereby preventing bacterial adherence, colonisation and infection¹.



Attachment of the P-fimbriated *E.coli* to the bladder urothelium, followed by colonisation and proliferation.

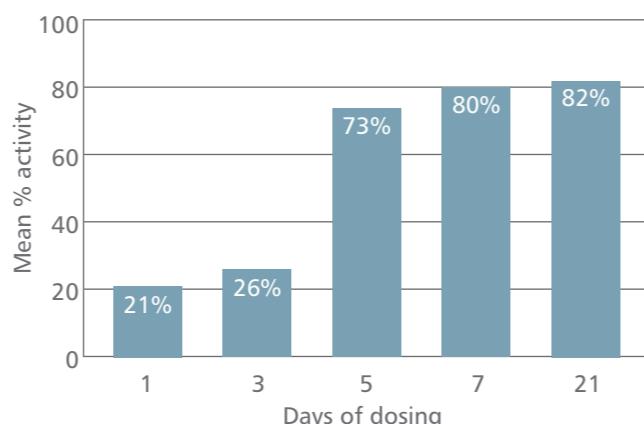


By reducing the bacterial attachment to the urothelium of the lower urinary tract, the bacteria fail to colonise and are instead voided in the urine.

Six male beagle dogs (3-8 years old) were given a standardised cranberry extract (1mg/kg PACs) daily for 21 days. Urine samples were collected on days 1, 3, 5, 7 and 21 and tested in an ex vivo assay for the ability to agglutinate human red blood cells (HRBC) specific for P-fimbriated *E.coli*².

The results of the study demonstrate that PACs reduce the ability of *E.coli* to adhere to and colonise the urinary tract.

Mean daily anti-adhesion activity against *E.coli*



PACs act to reduce the adhesion of P-fimbriated *E.coli* to the urothelium.

Probiotic

The EU-registered strain *Enterococcus faecium* PXN33 acts to reduce pathogenic bacteria within the gastrointestinal tract thereby reducing the risk of ascending infections of faecal origin.

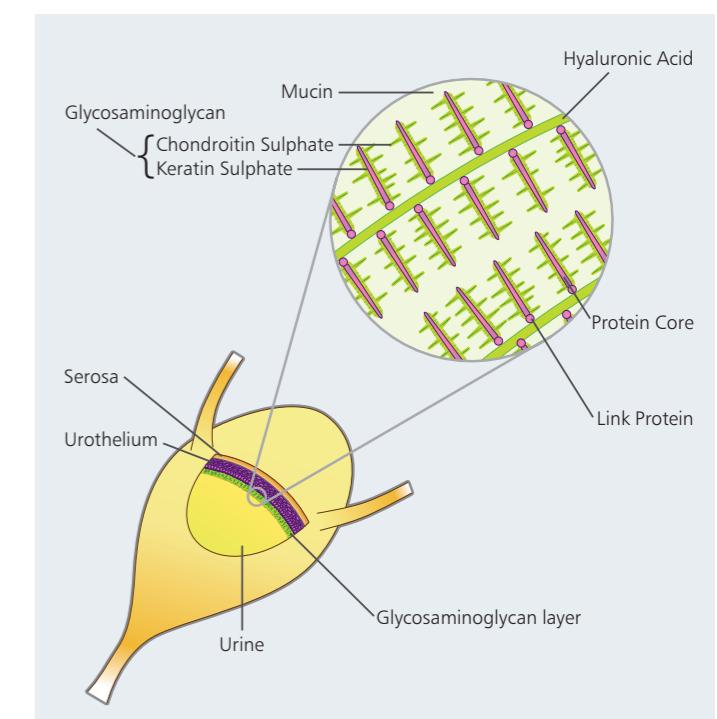
Mannanoligosaccharide

Created from purified yeast cell walls, Mannanoligosaccharide (MOS), binds *E.coli* and supports the innate immune system by attracting phagocytes to opsonise the bacteria. MOS is commonly used as a prebiotic to support the intestinal microbiota.



N-acetyl D-glucosamine

N-acetyl D-glucosamine is a precursor to chondroitin sulphate and keratin sulphate which make up the glycosaminoglycan (GAG) layer that lines and protects the sensitive bladder urothelium. A strong, resilient GAG layer is important to prevent bacteria from adhering to the urothelial cells.



The luminal surface of the urinary tract is covered by a protective barrier of GAGs. GAGs are negatively charged polysaccharide chains that help prevent microbes from adhering to the sensitive urothelium. The GAG layer responds to uropathogenic *E.coli* (UPEC) infection by increasing in thickness to reinforce its defensive properties.

Artificial chicken flavour

For enhanced palatability.