

Ingredient Spotlight: D-mannose

What is it? D-mannose is a six carbon sugar that is an isomer of dextrose, which is naturally occurring in a number of fruits. In the body, it is involved in protein glycosylation.

What does it do? D-Mannose is a naturally-occurring monosaccharide that binds to bacteria, such as *E. coli*, (1) aiding in its elimination. D-Mannose is not metabolized like other sugars. It's filtered through the kidneys, into the bladder and excreted via the urinary tract. D-Mannose may inhibit adhesion of bacteria, such as *E. coli*, to the urinary tract lining, resulting in excretion from the body. *E. coli* is the most common bacteria cultured in both cats and dogs with urinary tract challenges. (2, 3) D-mannose may help limit urinary tract challenges that can result from the presence of bacteria. (4)

Adverse effects: Generally well tolerated. Potential adverse effects include nausea, diarrhea, and GI upset

Potential drug interactions: None known

Products that utilize this ingredient include: UT Strength Pro, UT Strength feline

(1) Michaels EK, Chmiel JS, Plotkin BJ, Schaeffer AJ. Effect of D-mannose and D-glucose on *Escherichia coli* bacteriuria in rats. *Urol Res.* 1983;11(2):97-102. doi: 10.1007/BF00256954. PMID: 6346629.

(1) Ofek I, Goldhar J, Eshdat Y, Sharon N. The importance of mannose specific adhesins (lectins) in infections caused by *Escherichia coli*. *Scand J Infect Dis Suppl.* 1982;33:61-7. PMID: 6753135

(2) Dorsch R, von Vopelius-Feldt C, Wolf G, Straubinger RK, Hartmann K. Feline urinary tract pathogens: prevalence of bacterial species and antimicrobial resistance over a 10-year period. *Vet Rec.* 2015 Feb 21;176(8):201. doi: 10.1136/vr.102630. Epub 2014 Oct 28. PMID: 25351232

(3) Thompson MF, Litster AL, Platell JL, Trott DJ. Canine bacterial urinary tract... new developments in old pathogens. *Vet J.* 2011 Oct;190(1):22-7. doi: 10.1016/j.tvjl.2010.11.013. Epub 2011 Jan 15. PMID: 21239193.

(4) Scribano D, Sarshar M, Prezioso C, et al. d-Mannose Treatment neither Affects Uropathogenic *Escherichia coli* Properties nor Induces Stable FimH Modifications. *Molecules.* 2020;25(2):316. Published 2020 Jan 13. doi:10.3390/molecules25020316