Title: ANTIMICROBIAN EFFECT OF CRANBERRY EXTRACT (*Vaccinium macrocarpon) OVER MICROORGANISMS CAUSING URINARY INFECTION*

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Abstract:

Microbial resistance has proven to be a concern of global proportions, causing morbidity and mortality on various patients. Among all nosocomial infections, urinary tract infection (UTI) is the most frequent infection associated to invasive procedures. If not treated, UTI results in complications that can include the development of acute pyelonephritis and bacteremia. Cranberry (*Vaccinium macrocarpon*) is a fruit that has been growing commercially due to its flavor and benefits to health. Among its commercialized forms are: juice, tea and capsules containing the fruit's dry extract. The plant's action is related to the treatment of urinary tract diseases, since it contains substances that inhibit the adhesion of microorganisms to the epithelium of the urinary tract, making proliferation and reproduction harder. Therefore, cranberry can be a new alternative to the treatment of urothelial infections, since it is a natural and affordable product with diverse commercial forms, unlike the expensive conventional antimicrobians that can also cause resistance in microorganisms. This work evaluated *in vitro* the antimicrobian activity of cranberry extract, acquired from a compounding pharmacy, on microorganisms isolated from UTIs. The utilized bacteria, obtained from FIOCRUZ were: *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Proteus mirabilis*, *Serratia marcescens, Enterococcus faecalis* and *Enterococcus faecium*. The experiment consisted in using a growth control of microorganisms containing Mueller Hinton Agar, with the absence of the interference of cranberry extract. The study was conducted threefold, and each colony of microorganisms was exposed to the cranberry extract. To evaluate the growth or inhibition of the colonies, a spectrophotometer was used after exposure to the extract with a 600 nm filter and then, 24 hours after cultivation at 37ºC. After statistical treatment and ANOVA test, it was verified that cranberry affected the growth of S*. aureus, E. coli, K. pneumoniae, E. faecalis and S. marscecens* ($p < 0,05$), thus showing the antibacterial properties of cranberry. *The other bacteria didn't have alteration in growth.*

Key-words: cranberry extract, urinary infection, Vaccinium macrocarpon