Abstract

Objectives: The American cranberry proanthocyanidins (PACs) are the main responsible for its efficacy in urinary tract infections. Their mechanism of action is related to inhibition of Escherichia coli to urothelial cells. Cysticlean® contains an extract of American cranberry which provides 118 mg of PACs per dose. The activity of Cysticlean® tablets on Escherichia Coli adherence to bladder epithelial cells has been studied in vitro. Moreover, the activity of Cistyclean® both in powder for oral suspension and tablets has been compared ex-vivo. Methods: The rats received both Cysticlean® preparations per orem, and urine from each animal was collected during the following 16 hours and pre-incubated with E. coli. Subsequently, bacteria were incubated with T24 cells. After 1 hour the number of bacteria adhered per cell was calculated. For the in vitro study, E. Coli pre-incubated at various concentrations of the products were incubated with T24 cells and the same process previously referred was carried out. Results: Urine samples from rats taking Cysticlean® powder for oral suspension and tablets (118 mg PACs/animal) showed an important inhibition of E. Coli adherence (83% and 52% respectively). The inferior dose of 59 mg PACs/animal also showed marked inhibition of E. Coli adherence (29% after Cysticlean® tablets intake and 40% for powder). In vitro, Cysticlean® showed inhibition of bacterial adherence in all tested concentrations: 5, 25 and 75 PACs mg/ml, diminishing the number of bacteria adhered to epithelial cells by 25%, 36% and 34% respectively. Conclusions: Cysticlean® shows a significant inhibition of E. Coli adherence to urothelial cells. Cysticlean® powder for suspensión preparation is more effective than tablets. Cysticlean® powder for suspensión is well tolerated, and compliance has been observed. Its use is very recommendable in pediatric urinary tract infection prophylaxis. Due to the variety of products with American cranberry extracts in the market, with different proanthocyanidins declared content, it would be interesting to compare their activity using established pharmacological methods.

Keywords

American cranberry, Vaccinium macrocarpon, Proanthocyanidins, Urinary tract infection, In vitro, Ex vivo.