

MODERN METHODS FOR DETERMINATION OF DIURETICS IN PHARMACEUTICALS AND BIOLOGICAL OBJECTS

The excessive abuse and wrong prescription of diuretics can lead to negative side effects. Analytical control of urine samples for doping agents demands detection of small amounts of diuretics. Thus, the use of highly sensitive and selective methods is required for the determination of diuretics.

Gas and high-performance liquid chromatography are the most widely used methods for the determination of diuretics since they provide multicomponent, reliable, selective and highly sensitive analysis. However in most cases chromatographic separation is possible only after preconcentration of analytes by solid-phase or liquid-liquid extraction. Besides, long analysis time and demand of expensive instruments complicate systematic application of methods.

Other highly selective methods are spectroscopic, in particular spectrophotometric and luminescent, methods which were proved to be efficient for the determination of diuretics in aqueous solutions. Complex matrices such as urine and blood require preliminary separation of analytes. Recently solid-phase extraction of diuretics by molecularly imprinted polymers, octadecyl disks and nylon membranes from human urine was developed. High coefficient of pre-concentration and lightness of elution of analytes from surface make the application of imprinted polymers in the extraction of diuretics perspective.

Keywords: chromatographic methods, spectroscopic methods, diuretics.