Aldulaimy Mustafa

APPLICATION OF ATOMIC AND MOLECULAR EMISSION METODS ANALYSIS IN PHARMACY

Tutor – PhD in chemistry, associated professor Belyatsky Vladimir Nikolaevich
Department of Bioorganic Chemistry,
Byelorussian State Medical University, Minsk

Atomic and molecular emission methods of analysis are widely used in pharmacy. Atomic emission methods (AES) allow to determine concentration of many metals with high accuracy and sensitivity (at level sensitivity ~ppm or ppm depending on nature of metals). To generate the atomic emission line one can use flame or plasma. The best technique for the atomic emission spectroscopy is inductively coupled plasma.

Molecular emission spectrometry methods are based on luminescence. The latter is divided into two phenomena: fluorescence and phosphorescence. Molecular fluorescence has been used for the direct or indirect quantities analysis in a variety of substances. Examples of naturally photoluminescent organic analytes are aromatic aminoacids, phenylalanine, tyrosine, tryptophan, different vitamins, such as vitamin A, vitamin B_2, vitamin B_6, vitamin B_{12}, vitamin E. Such catecholamines as dopamine and norepinephrine are also may be analyzed. Luminescence method is useful in analysis of pharmaceutical and psychotropic drugs: quinine, salicylic acid, morphine, LSD, codeine, caffeine. Environmental pollutants such as pyrene, benzo[a]pyrene, organothiophosphorouse pesticides, DDT also are natural fluorescents. If organic analyte has no natural luminescence, it's possible to transform it into a fluorescent product by a chemical reaction with fluorescent labeled reagent.