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PRODUCTION OF THE ALPHA EMITTERS AND THEIR THERAPEUTIC USE

Abstract: Radioactive drugs in therapy are used primarily in onkology. Intensive investigations are carried out in the development of the procedures for the production and labelling with radionuclides which are considered to have the best perspective for use. The basis for the introduction of alpha emitters into the nuclear medical practice are their radiobiological properties. High *LET* and *RBE* values and short ranges in biological tissues are advantageous in comparison with nowadays most often used beta emitters, primarily ^{90}Y and ^{131}I . The most important criteria for the introduction of a given radionuclide in the routine use are given. Shown are the procedures for the production of the most important alpha emitters ^{211}At , ^{212}Bi and ^{213}Bi . Discussed are the principles of labeling of radiopharmaceuticals for some of the indications for their therapeutic use.

Key words: radioisotopes alpha emitters, nuclear medicine, therapy, astatine-211, bismuth-212,213