ABSTRACT IN ENGLISH

Human gastric juice contains mainly aspartate proteinases: pepsin A and pepsin C. Both pepsins are produced by gastric mucosa as inactive pepsinogens and they are activated to the corresponding pepsins in the acidic environment of the gastric lumen. The levels of pepsinogens in serum reflect the morphological and functional status of gastric mucosa. A subject of this thesis is a part of a long-term investigation that focuses on the elaboration of methods for separation gastric aspartate proteainases that would be suitable for diagnostic purposes.

The preparation of new type ligands was a concrete subject of PhD. thesis that after their immobilization they can enable the separation of aspartate proteinases. Four heptapeptides containing D-leucinyl residue were synthetized (Val-D-Leu-Pro-Phe-Phe-Val-D-Leu, Val-D-Leu-Pro-Tyr-Phe-Val-D-Leu, Val-D-Leu-Pro-Tyr-Tyr-Val-D-Leu and Val-D-Leu-Pro-Phe-Tyr-Val-D-Leu.

The prepared heptapeptides immobilized on agarose magnetic particles were used for the study of their interaction with porcine pepsin A and rat pepsin C. While porcine pepsin A was adsorbed to all heptapeptides immobilized to magnetic particles, rat pepsin C was not retarded. Similar results were obtained using heptapeptides immobilized to Sepharose. The situation was more complicated in the case of the separation of human pepsin A and C. Magnetic agarose particles containing immobilized Val-D-Leu-Pro-Tyr-Phe-Val-D-Leu and Val-D-Leu-Pro-Tyr-Tyr-Val-D-Leu heptapeptides were more effective; the first elution peak contained a mixture of pepsin A and C, while the second one only pepsin A. Using the immobilization of Val-D-Leu-Pro-Tyr-Phe-Val-D-Leu- and Val-D-Leu-Pro-Phe-Tyr-Val-D-Leu on Sepharose, both human pepsins were separated.