Biologically active compounds such as bombesin are very important substances which are responsible for proper function in the human body. Bombesin is peptide which acts as a neurotransmitter in the central nervous system, regulates many functions of the digestive system. The pharmacological effect of bombesin has also been found to extend into various physiological aspects such as hypertensive action, contractive effect on uterus, colon or ileum, locomotor activity, stimulating action on the gastric secretion, hyperglycemic effect and increasing insulin secretion. Moreover, it stimulates the growth of various tumor cell lines (lung, prostate, stomach, pancreas, colon and breast).

The main goal of the research project is to investigate the way of the adsorption of bombesin (BN) and its native fragments such as its native fragments such as BN^{13-14}, BN^{12-14}, BN^{11-14}, BN^{10-14}, BN^{9-14} and BN^{8-14} where: X-14 fragments of bombesin amino acid sequence) on new surface-enhanced Raman scattering-active metallic substrates. The studied substrates will be obtained under controlled conditions (at different oxidation-reduction potentials of electrodes, size of metal particles/roughness). These substrates include: electrochemically roughened surfaces (platinum, copper and iron) electrodes and (copper oxide (II), copper oxide (I) and iron oxide (III)) colloids.

Aforementioned goals of this research project will be carried out using surface-enhanced Raman scattering technique to study bombesin adsorption mode. Moreover, scanning electron microscope will be used to study the surface morphology of substrates and the bombesin/active metallic substrate of system.

Research project submitted for investigation on the adsorption process of bombesin and its fragments. The extension of these new studies allow to external knowledge on the behavior of this peptide at metal/liquid interface and determine changes in metal type, metal roughness size and metal oxidation state (metal oxide colloids) influences BN adsorption process. Their influence is important because they can be helpful in the design of new peptide drugs having specific and selective antagonistic properties are metabotropic BN-receptors that are responsible for the growth of cancer cells.