

This thesis is dedicated to research in radiolabeling bile pigment bilirubin. Minority bilirubin present in the body the form unconjugated. In this work, it was crucial synthesize radiolabeled bilirubin which could be monitored by detector in vitro experiments. A possible further applications, such bilirubin would be detectable in vivo experiments using μ -PET/SPECT (micro- positron emission tomography/single photon emission computed tomography) . The aim of this thesis propose variation for possible signs of bilirubin radioisotopes and synthesis of bilirubin derivatives suitable for radioactive labeling. Another objective of this work is the synthesis and study of the well-known derivative ranarubin called bilirubin, which could potentially have very similar characteristics, such as bilirubin and therefore would be a good candidate for radioisotope labeling and study of biological systems.