Abstract

This Bachelor thesis aims at isolation and partial identification of biologically active substances which are produced by actinomycetes and can be potentially applied in medicine. Cultivation broths of actinomycetes containing their metabolites were purified and pre-concentrated by solid phase extraction. Then, the bioassay of the extracts by Kirby-Bauer test using the sensitive strain *Kocuria rhizophila* was performed. Biologically active metabolites were analyzed and isolated by ultra-performance liquid chromatography with photo diode array detector. Isolated substances were assayed by mass spectrometry, which yielded relative molecular mass values of the unknown compounds. The values were compared with relative molecular masses of compounds listed in a chemical database, which involves natural products including antibiotics. We revealed that the unknown biologically active substances do not refer to any already discovered compound present in the database suggesting that the unknown compounds may be novel. More mass spectrometry and nuclear resonance experiments have to be carried out in order to elucidate their structure.

Key words: actinomycetes, antibiotics, SPE, UPLC, HPLC

Subject heading: analysis of secondary metabolites, bioassay test, isolation of biologically active compounds, identification of unknown substances, new antibiotics discovery