

The scientific objective of the project entails the development of precise analytical conditions to isolate phenolic compounds from ginger rhizomes (*Zingiber officinale*) - a traditionally used plant species of Asian origin. This task will be achieved by the application of counter-current chromatography that is a novel isolation technique and can be operated on analytical and industrial scales. The isolates will be screened for their antiseizure/antiepileptic properties in different models of seizure/epilepsy in zebrafish and mice. Epilepsy is a chronic neurological disorder that results from abnormal electrical activity of neurons in the central nervous system. Although this disease has been known for centuries and its mechanisms have been at least partially recognized, modern medicine still cannot cope with it effectively and many therapeutic requirements in epilepsy treatment have not been fulfilled. There is a need for medicines that will treat pharmaco-resistant seizures (currently it is about 30-40% of all cases of epilepsy) as well as will be able to cure or prevent epileptogenic processes in the brain. The project will contribute to the development of the fields of pharmacognosy, pharmacology and analytical chemistry. The project's results will broaden knowledge about the assessment of optimal conditions for the isolation of selected active metabolites from the total extracts using counter-current chromatography. The implementation of the project will provide ready-made analytical purification schemes for obtaining these potential antiseizure/antiepileptic agents on a broader scale.