

Flavonoids are a large group of compounds, commonly found in the plant world. These compounds are characterized by strong antioxidant, bactericidal and fungicidal properties. The mentioned flavonoid properties are closely dependent on their chemical structure. Dependencies chemical structure - the properties of single flavonoids have been quite well known.

As a result of the chemical reaction polymerization of flavonoids, from low molecular weight flavonoids, compound with higher molecular weight and other properties are obtained. Few literature reports indicate that high-molecular (polymeric) flavonoid forms have better properties than low-molecular (monomeric) forms. However, up to now, only a few methods have been described for the polymerization of these compounds. Furthermore, the relationship between the flavonoid polymerization methods and the resulting polymeric structure and the properties of the polymeric forms have not been investigated.

The aim of the project is to determine the following relationship: the method of flavonoid polymerization - the obtained polymeric structure - the properties of the polymeric form resulting from the structure. The submitted project includes laboratory tests based on the formation polymeric forms of flavonoids using three methods of polymerization. Four flavonoids (quercetin, naringenin, rutin and catechin) were selected for the study because flavonoids are huge group of very diverse compounds. Next, the chemical structure of the obtained compounds and their properties, such as antioxidant, bactericidal and fungicidal properties, will be examined.

The research theme was taken because the polymerization of flavonoids is a little-known and interesting topic, that needs to be expanded. In available scientific literature there is no information about different methods of polymerization, the relationships between polymerization process and structure and properties of a polymerized flavonoids.