Plant food is a rich natural source of biologically active compounds, especially flavonoids. It is estimated that their average daily consumption is approx. 20-200 mg. Flavonoids present in food have beneficial effects on human health. They have been found to exhibit a diverse spectrum of biological activities such as: antioxidant, antitumor, anticancer and antimicrobial. Health benefits associated with them resulted in a significant increase of interest in this class of compounds. They become more often the ingredients of nutraceuticals and diet supplements.

The antioxidant activity of flavonoids is primarily related to the presence of conjugated double bonds and hydroxyl groups in the flavonoid molecule. In general, it is considered that a higher number of hydroxyl substituents in flavonoids results in a higher antioxidant activity. Application of microorganisms is a good method to introduce such structural elements to flavonoid molecule. Additionally flavonoids obtained *via* biotransformation of the natural ones are classified as natural compounds and may find application as components of nutraceuticals and / or drugs with pro-health, antioxidant and anticancer properties.

The main scientific objective of the Project is to obtain the natural flavonoids with high antioxidant and anticancer activity, occurring naturally in a small quantities.

The project involves the use of yeasts for increasing antioxidant and anticancer activity of cheap and available flavonoids with confirmed biological activity. During realization of this project, the antioxidant and anticancer activity of obtained compounds and its substrates will be evaluated.

It is expected that the research carried out under this Project will provide highly active flavonoids, which could find in a future an application as components of nutraceuticals with antioxidant and anticancer properties. The results obtained during the project will be the basis for future, more advanced research on obtaining this bioactive compounds in larger scale.