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Fund “Nauka” Project № 17020 Resume – Competition-Based Session 2017:

“Preparation of anthocyanin-rich extract of elderberry (*Sambucus ebulus*) and characterization of its biological activity in connection with the establishment of adaptogenic potential with a view to its use as a raw material in the production of food and medicinal products”

Project leader: Assoc. prof. Yoana Dimitrova Kiselova-Kaneva, PhD

The object of the study is a traditional Bulgarian medicinal plant elderberry (*Sambucus ebulus*), used in folk medicine as an anti-inflammatory and immunostimulating agent. The aim of the project is to obtain anthocyanin-rich extract of elderberry fruit and characterize its biological activity in terms of adaptogenic potential with a view to its use as a raw material in the production of food and medicine. The effect of total extract and purified anthocyanin fraction on processes such as cell proliferation, antioxidant protection and inflammation will be evaluated. The following tasks are performed:

- Study of the phytochemical composition of the extract and the obtained fractions;
- Study of the effect of the extract and anthocyanin fraction *in vitro* on cell cultures in models of oxidative and inflammatory stimuli;
- Analysis and integration of the results of phytochemical analysis and biological experiments to identify molecular targets affecting the herb and evaluation of the adaptogenic potential of *S. ebulus* extracts.

Modern techniques (extraction, fractionation and concentration) are used to obtain fractions rich in biologically active substances from elderberries. The obtained fractions are characterized by modern and highly informative analytical and molecular biological methods (ELISA and Real-Time PCR).

Expected results: Development of a procedure for obtaining purified fractions of elderberries, which will determine the phytochemical composition and antioxidant activity; obtaining new data on the molecular effects of the total extract and the anthocyanin fraction on cell proliferation, antioxidant protection and inflammatory response in in vitro cell models.

The results are included in the dissertation of a doctoral student.