The genus *Fagopyrum* consists of dicotyledonous plants belonging to the Polygonaceae family. This genus includes 22 annual and perennial species, which grow mainly in the Eurasian highlands. The most important cultivated species are common buckwheat (*F. esculentum*, also called sweet buckwheat) and Tartary buckwheat (*F. tataricum*, also called bitter buckwheat). The main reasons for the low prevalence of buckwheat cultivation in Poland and Europe are low yields, differences in dietary habits, and low awareness of food producers and consumers about the nutritional value and other beneficial properties of buckwheat. In China, both *F. tataricum* and *F. esculentum* are cultivated as one of the basic food products in the southwestern and northwestern regions and are very popular among healthy lifestyle enthusiasts. It is worth emphasizing that *F. tataricum* is characterized by higher yields and nutritional values than *F. esculentum*. However, the overall yield of buckwheat is relatively low, which makes it challenging to meet the needs of the general public. Buckwheat is in line with global trends in the consumption of functional foods due to its lack of gluten and high content of various phenolic compounds, including rutin, quercetin and C-glycosyl flavones, such as orientin, isoorientin and vitexin.

We believe that the research tasks proposed in the project will shed new light on fundamental aspects of seed development of the two cultivated buckwheat species. In addition to significant contributions to basic research, some project research tasks may indirectly have practical applications and/or generate valuable resources for the international research community in various areas of experimental biology. Our team's unique and complementary experience in the project will create the intellectual, methodological and infrastructural potential to conduct the planned research.