

## DESCRIPTION FOR THE GENERAL PUBLIC

Food production is always at risk due to various factors, including plant pathogens which constitute a major cause of severe losses in agriculture but range of chemicals used for their protection is small. In addition, their excessive use has harmful effects on people and the ecosystem. *Xanthomonas* and *Xylella* species, which are closely related members of the same taxonomic family *Xanthomonadaceae*, including numerous pathogenic species of bacteria, including the quarantine from lists A1 and A2 EPPO, are part of the most dangerous plant pathogens, posing a continuing challenge to food safety. The threat of invasive bacterial pathogens *Xanthomonadaceae* family and their vectors, in Poland is quite high. Our country has already confirmed the presence of *Xanthomonas arboricola* (Xa) bacteria, however research on their etiology is very limited. In addition, in America and several European countries, a very dangerous bacterium *Xylella fastidiosa* (Xf) has been reported. However, extensive research to determine the presence of Xf and insect vectors of bacteria has not been conducted in Poland. At present, the intensive exchange of plant material, adverse climatic conditions and climate warming favour the spread of invasive species and disease outbreaks and the adaptation of their vectors. So, it seems that we have never ending struggle against plant pathogenic bacteria. Therefore, it is very important in Poland to undertake and develop research on bacterial pathogens of the *Xanthomonadaceae* family.

The objectives of the proposed project “The threat of crop plants by *Xanthomonadaceae*, with particular emphasis on the invasive species *Xanthomonas arboricola* and *Xylella fastidiosa*, and vectors” focus on determination of the occurrence of serious pathogens Xf and Xa in Poland and broadly defined etiological studies including phenotypic and genetic characteristics and detection. The results will help to identify the phytosanitary risk and provide us the wide extensive knowledge on the phytopathogenic bacteria of the *Xanthomonadaceae* family. Acquired knowledge through this project will allow our group to the scientific development, will bring us closer to a better understanding of the biology of pathogenic micro-organisms and their vectors, which can be the basis for the development of improved phytosanitary strategy in the future. The proposed research goes beyond the current state of the art and is undoubtedly pioneering with great cognitive potential, an extremely important and innovative aspect for science, students in the field of entomology, bacteriology, phytopathology, genetics and molecular biology. The presented project will have a positive impact on the economy of our country.