Susceptibility of members of Solanaceae to *Cuscuta campestris* infection

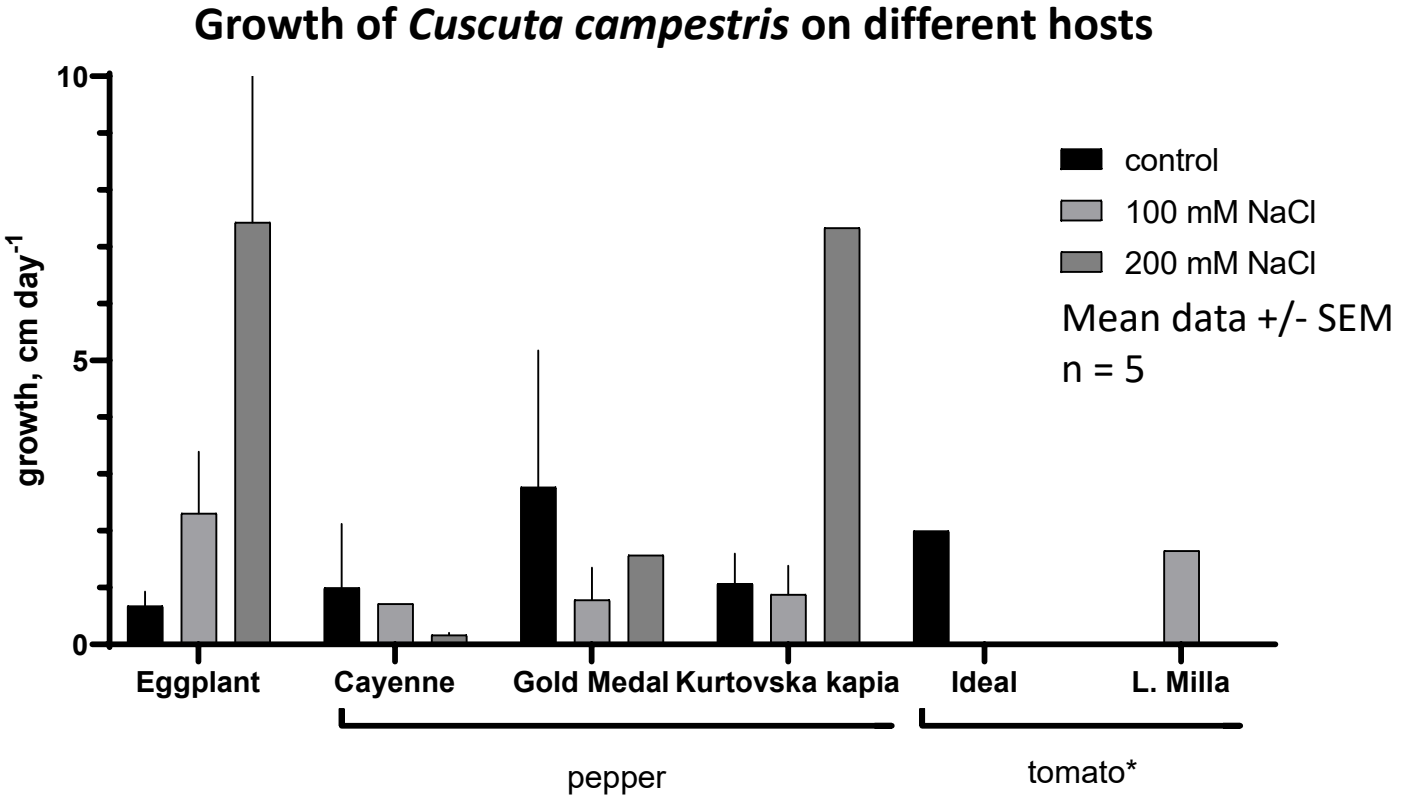
Ivanela Albanova, Viktoria Petrova, Maria Stoyanova, Denitsa Teofanova, Lyuben Zagorchev
Department of Biochemistry, Faculty of Biology, Sofia University "St. Kliment Ohridski", 8 Dragan Tsankov blvd., 1164, Sofia, Bulgaria
*Corresponding author: lzagorchev@biofac.uni-sofia.bg

Background: *Cuscuta campestris* is an aggressive aerial parasitic plant with North American origin, but widely spread as an introduced and invasive species on all continents except Antarctica. It is known as a common parasite on economically important crop plants, although some and especially tomato (*Solanum lycopersicum*) are naturally resistant.

Acknowledgement: The present study was funded by grant 80-10-96/16.04.2020 of the Science Fund of Sofia University.

FACULTY OF BIOLOGY
SOFIA UNIVERSITY

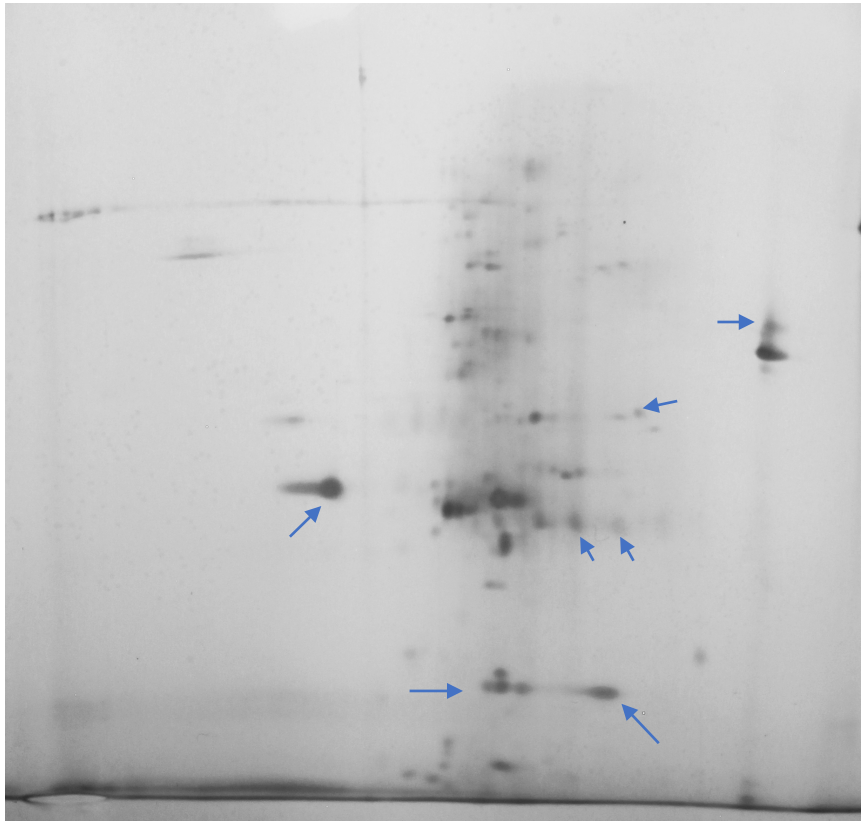
AIM AND RESULTS: a range of members of Solanaceae – eggplant (*Solanum melongena*), three pepper (*Capsicum annuum*) and five tomato Bulgarian cultivars were tested for their susceptibility to *Cuscuta campestris* infection. Moreover, the effect of different saline regiments – 0, 100 and 200 mM NaCl on the development of the parasite were analyzed. While eggplant and pepper were found to be susceptible hosts, only two individual *C. campestris* plants successfully developed on tomato. While in eggplant the growth of the parasite was remarkably higher on NaCl challenged hosts, the predominant effect in pepper was the opposite.



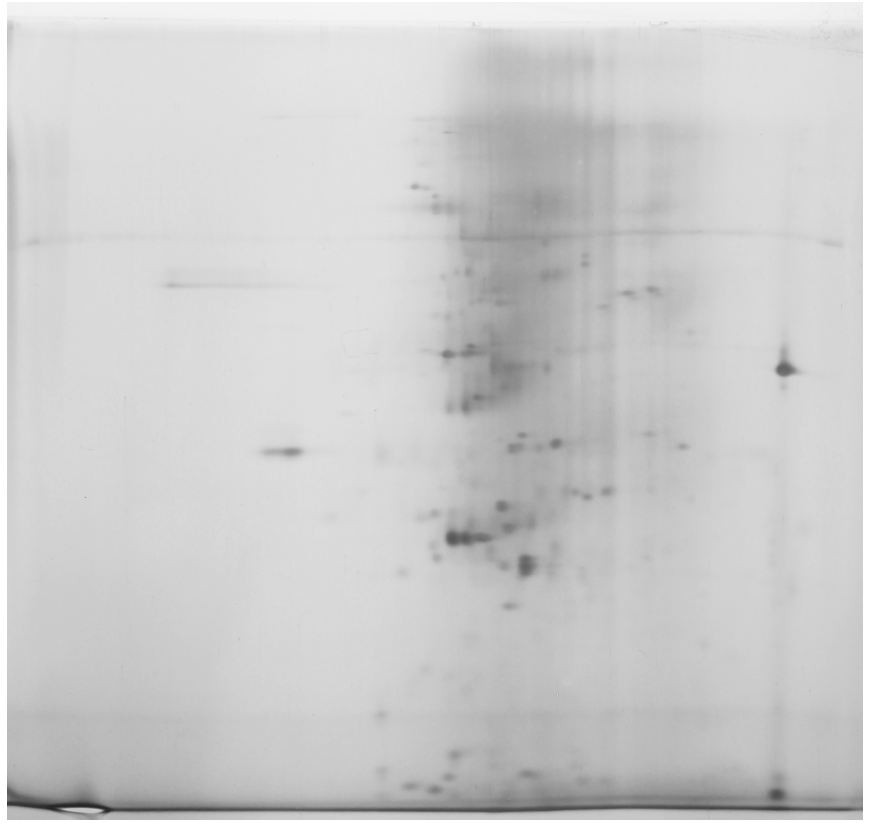
*data based on single *Cuscuta campestris* plants; three more cultivars were tested and none was susceptible;

Isoelectric focusing in broad pH range (pI 3 – 10)

12.5% T SDS PAGE



infected



non-infected

RESULTS: water-soluble proteins from the infection site in tomato, where hypersensitive response was observed, were isolated and separated by two-dimensional gel electrophoresis. Numerous differentially presented proteins (denoted by arrows) in response to infection were observed. They are promising putative factors, defining the remarkable resistance of this species to *Cuscuta* infection and will be subject to further analyses.