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Plant antimicrobial extract against plant pathogenic microbe

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Nowadays, the fight against plant diseases is a global problem, even though there are different approaches involving physical, chemical, biological methods have been elaborated and used. At the same time, the number of resistant microorganisms significantly increases. Plant extracts and phytochemicals with known antimicrobial properties can be of great significance in therapeutic treatments. In this regard, one of the potent members of the Asteraceae family is *Stevia rebaudiana*, which is popular in the world not only as a low-calorie, medicinal, natural sweetener, also known for its antioxidant activity of leaf extract. *Stevia* was introduced in Georgia in the 80s of XX century. In the implemented research was studied antimicrobial activity of *Stevia* plant extract against plant phytopathogens, which stored in the culture collection of the BSU, Institute of Phytopatology and Biodiversity, Georgia. The survey was conducted by the *Ralstonia solanacearum*, *Pseudomonas syringae* pv. *Actinidiae* and *Erwinia Amylovora* strains and fungal pathogen. To action of the extracts of *Stevia* leaves on the growth of bacterial strains was showed that the highest inhibitory activity (measured by zone of inhibition) was the ethyl alcohol and Chloroform. The largest zones of inhibition were observed for ethyl alcohol extract against *Pseudomonas syringae* pv. *Actinidiae*, KW1 strains, (20 mm) and *Ralstonia solanacearum* KhT88 and KhPe90 strains (18 mm). The results of the tests conducted on fungal pathogens also showed high activity chloroform and absolute ethanol extracts. Observations on 96 h cultures have shown that sensitive fungal pathogens are characterized by a decrease in growth compared to the control, spores and mycelium characterized deformation. Especially sensitive was *Fusarium moniliforma* to chloroform extract. The presented results allow to continue research in this direction and try these extracts not only *in vitro* but *in vivo* environment condition.

Recent Publications

1. L Venkanna and M Estari (2012) *In vitro* antimicrobial activity of some medicinal plants used by tribes in Warangal district (Andhra Pradesh), India. *Biology and Medicine* 4(2):85-88.
2. Erdogru O T (2002) Antibacterial activities of some plant extracts used in folk medicine. *Pharm Biol* 40(4):269-273.

Biography

Maka Muradashvili has been studying plant bacterial disease with different aspect. She is a Young Scientist and the subject of her PhD project was to study distribution and biodiversity of strains of *Ralstonia solanacearum* (causing plant bacterial wilt) in Georgia and to investigate control mechanisms. By the framework of a joint project with the NCDC, Georgia she has deposited in the GenBank the whole genome sequence based analysis of eight (GEO_6, GEO_55, GEO_57, GEO_81, GEO_96, GEO_99, GEO_230 and GEO_304) strains of *R. solanacearum*, which isolated in Georgia. The genome sequence data are a valuable resource for the evolutionary, epidemiological studies of this phytopathogen. Now her interesting area is to researching plant antimicrobial extract as a biological control. She has been studying *R. solanacearum* specific bacteriophages collaborated with the Bacteriophage Institute, Georgia. They are actively involved in the research, which is still underway.

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