

A Survey of Viruses of Wild Solanum Species in South Africa

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FBIS170515231040**

Viruses are ubiquitous in the environment. They can cause disease, infect their hosts latently and even be beneficial. Due to the economic importance of disease-causing viruses in cultivated plant species, current knowledge of plant virus diversity has been largely obtained from agricultural species. However, wild plants represent the majority of all known plants and are likely to carry a wider range of viruses, including novel species, than cultivated species. Virus diversity in wild plants may influence plant biodiversity in natural ecosystems, especially the abundance of indigenous versus alien invasive plants. Wild plants may also be sources of viruses that are harmful to cultivated crops. Alien invasive plants can introduce new viruses into indigenous ecosystems. This proposed study will, therefore, investigate virus diversity in indigenous and alien invasive *Solanum* spp. in natural habitats in South Africa. The genus *Solanum* is composed of some of the most important indigenous plants, alien invasives and cultivated species in South Africa. Symptomatic and asymptomatic tissue will be collected from plants of six invasive and four indigenous *Solanum* species in natural habitats where their occurrence has been reported by SANBI. PCR, RT-PCR, ELISA and sequencing approaches will be employed to identify Poleroviruses, Potyviruses, Potexviruses Tospoviruses and Begomoviruses, genera that are known to infect Solanaceous plants. To confirm the identity of the host species from which viruses are identified, the virus-positive *Solanum* plant specimens will be subjected to DNA barcoding. The virus diversity in indigenous and invasive species will be compared. Plant species that are highly susceptible to diseasecausing viruses and may serve as sources of infection near cultivated fields, will be identified. Virus specimens will be deposited into the Plant Virus and Antiserum collection at the ARC-PPRI.