

## Multiscale Modelling of Citrus Black Spot Transmission Dynamics along the Pre-Harvest Supply Chain

**Authors :** Muleya Nqobile, Winston Garira

**Abstract :** We presented a compartmental deterministic multi-scale model which encompass internal plant defensive mechanism and pathogen interaction, then we consider nesting the model into the epidemiological model. The objective was to improve our understanding of the transmission dynamics of within host and between host of *Guignardia citricarpa* Kiely. The inflow of infected class was scaled down to individual level while the outflow was scaled up to average population level. Conceptual model and mathematical model were constructed to display a theoretical framework which can be used for predicting or identify disease pattern.

**Keywords :** epidemiological model, mathematical modelling, multi-scale modelling, immunological model

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