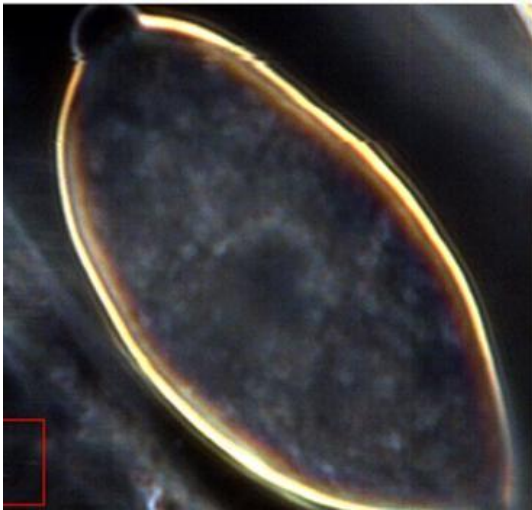
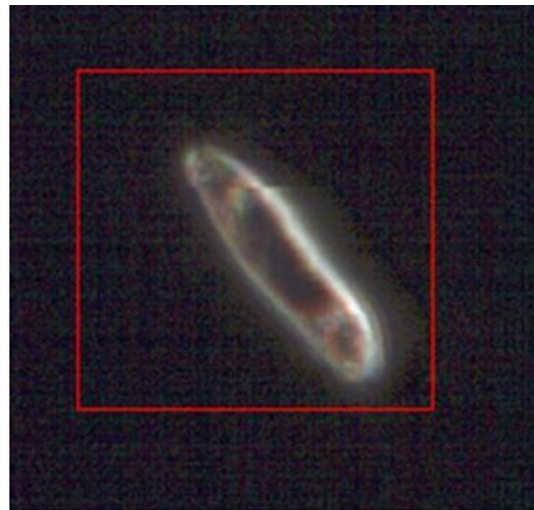


## Hyperspectral Characterization of Plant Pathogenic Organisms

Pathogens infecting crops are causing great harm to the world's food supply. The potato famine in Ireland and head blight of cereals was caused by infections of the pathogens *Phytophthora infestans* and *Fusarium* spp. These pathogens belong to the kingdom Chromista and Fungi, respectively. Chemical control of these pathogens can sometimes be difficult, depending on the inhibition of pathogen specific metabolic pathways. As a result, the use of crop cultivars resistant to pathogens is a valuable alternative. The CytoViva Hyperspectral Microscope System can play a role in understanding the pathobiology of microorganisms infecting crops. High quality images of *P. infestans* and *Fusarium* spp. have been obtained with the CytoViva Hyperspectral Microscope System as seen in **Figure 1** and **Figure 2**.

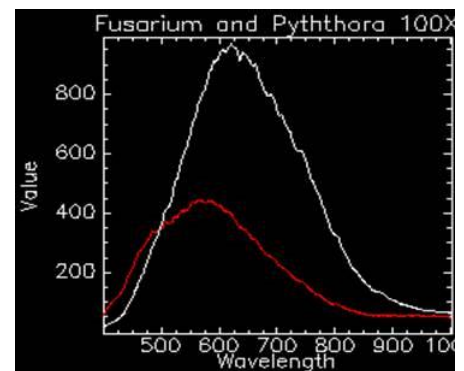


**Figure 1.** Sporangium of *Phytophthora infestans*



**Figure 2.** Macroconidium (spore) of *Fusarium* spp.

CytoViva hyperspectral analysis of the cell wall of pathogens reveals the two distinctive spectra seen in **Figure 3**. This difference is attributable to the unique cellulosic composition of the cell wall of the chromist *Phytophthora*, differing from chitin in fungal cell walls. Differences between the mature cell wall and newly grown wall have also been characterized by hyperspectral analysis of images obtained with the CytoViva Hyperspectral Microscope System.



**Figure 3.** CytoViva Hyperspectral Analysis

### More Information

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