

# Detection and Classification of Citrus Fruit Infestation by *Bactrocera dorsalis* (Hendel) Using a Multi-Path Vis/NIR Spectroscopy System

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## **Supporting Information**

**Figure S1.** Original spectra and MSC processed spectra under orientation A.

**Figure S2.** Original spectra and MSC processed spectra under orientation B.

**Figure S3.** Original spectra and MSC processed spectra under orientation C.

**Figure S4.** Original spectra and MSC processed spectra of the average spectra.

**Figure S5.** PLS-DA analysis results of four paths in orientation A. A Path 1, B Path 2, C Path 3, D Path 4.

**Figure S6.** PLS-DA analysis results of four paths in orientation B. A Path 1, B Path 2, C Path 3, D Path 4.

**Figure S7.** PLS-DA analysis results of four paths in orientation C. A Path 1, B Path 2, C Path 3, D Path 4.

**Figure S8.** Classification of citrus according to the stages of infestation in test set: confusion matrix of four light path spectra in orientation A.

**Figure S9.** Classification of citrus according to the stages of infestation in test set: confusion matrix of four light path spectra in orientation B.

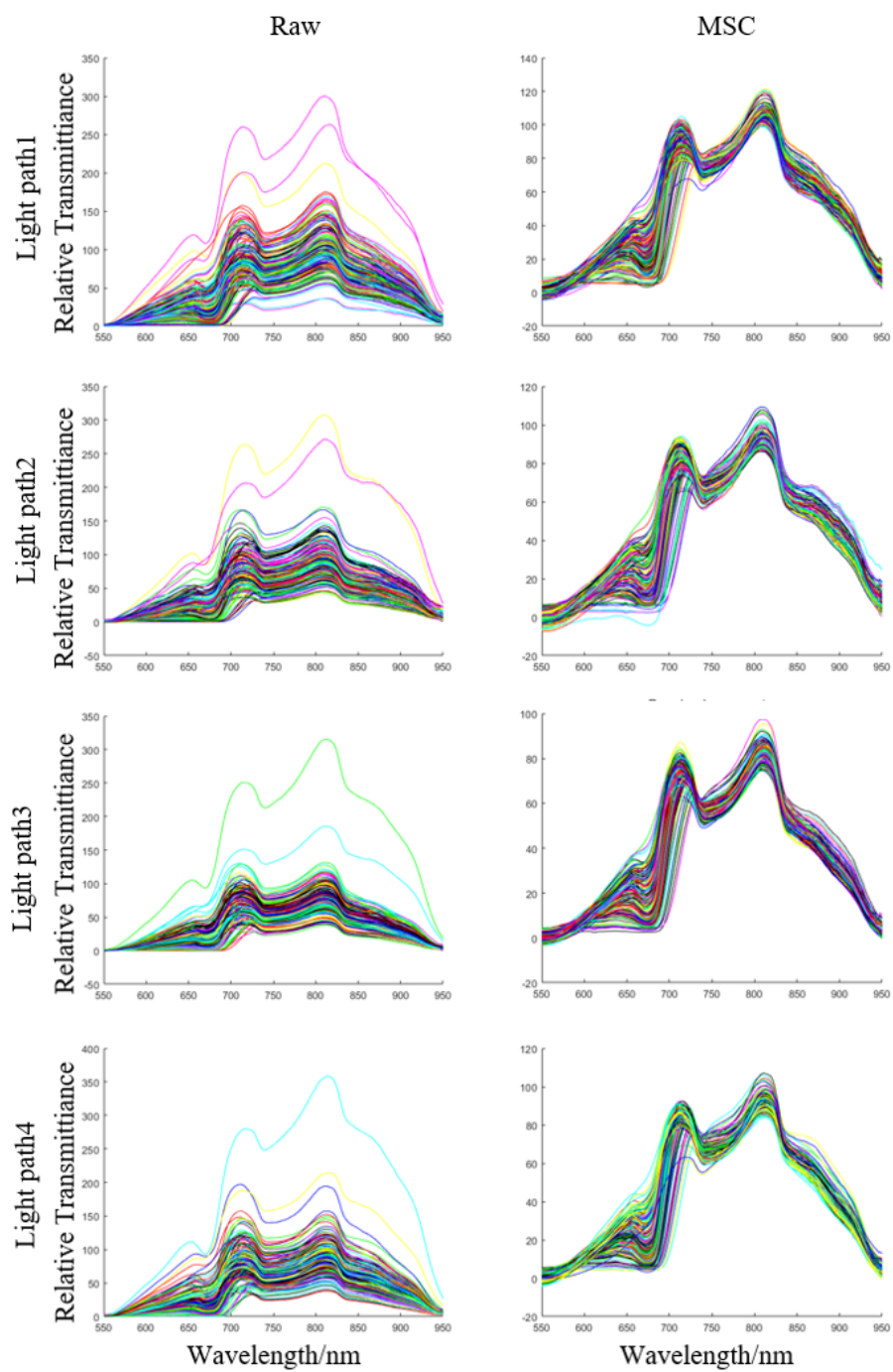
**Figure S10.** Classification of citrus according to the stages of infestation in test set: confusion matrix of four light path spectra in orientation C.

**Figure S11.** PLS-DA test set results for average spectra of four paths in three fruit orientations. (A) orientations A, (B) orientations B, (C) orientations C.

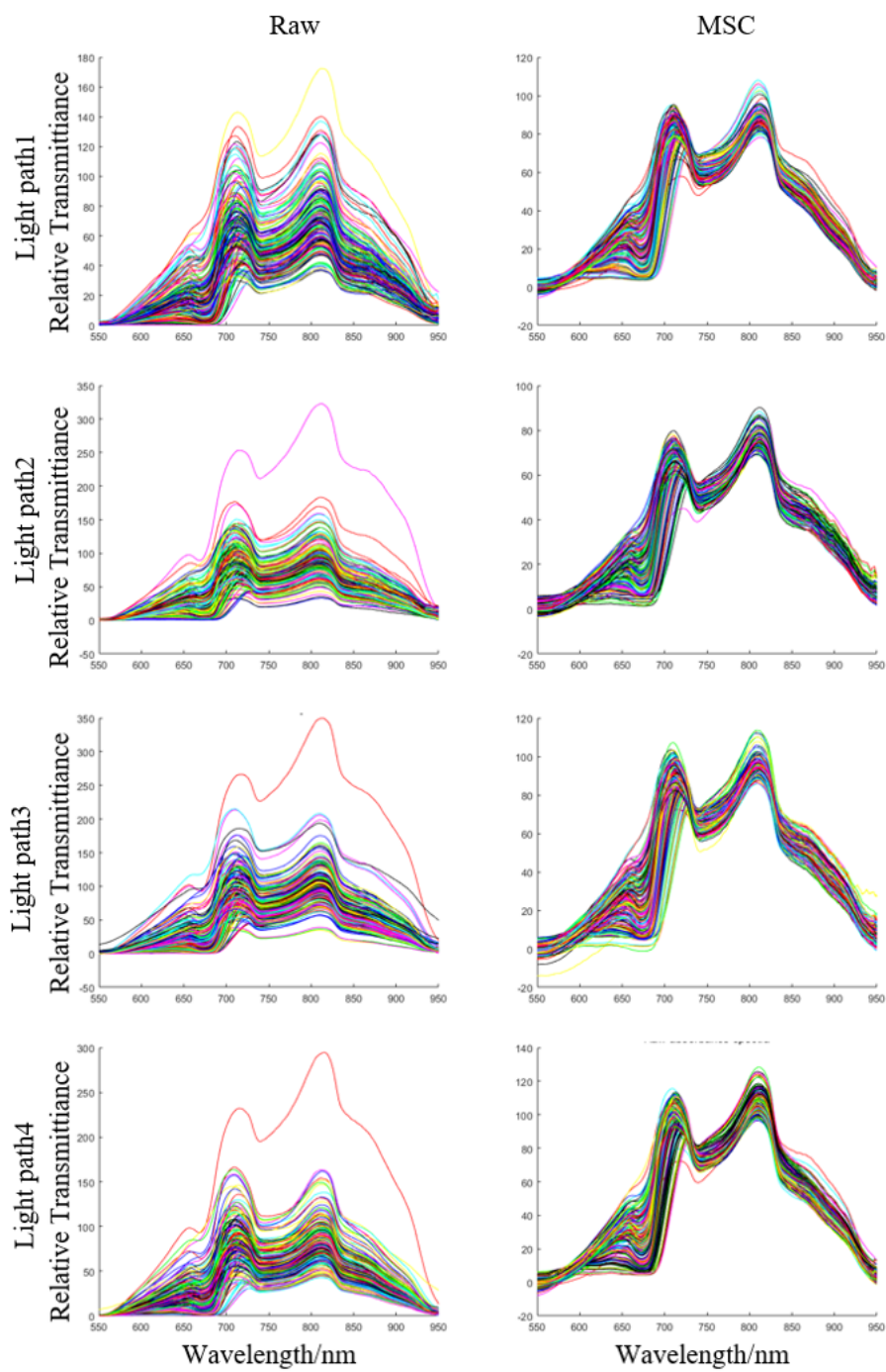
**Figure S12.** The interface of the developed multi-path NIR spectroscopic system.

**Figure S13.** Scheme of the multi-path NIR spectroscopic system.

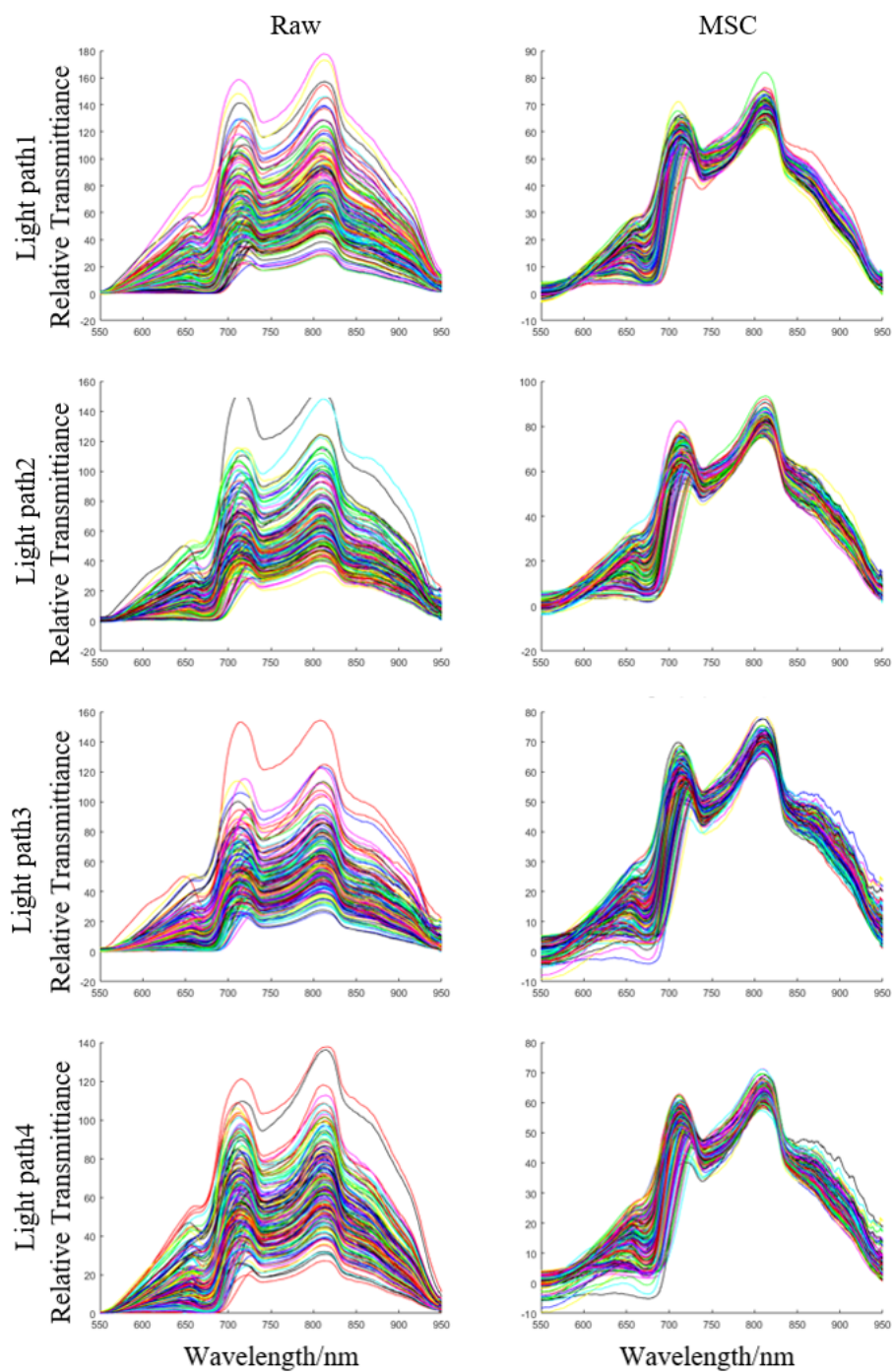
**Figure S14.** The developed multi-path NIR spectroscopic system control logic.



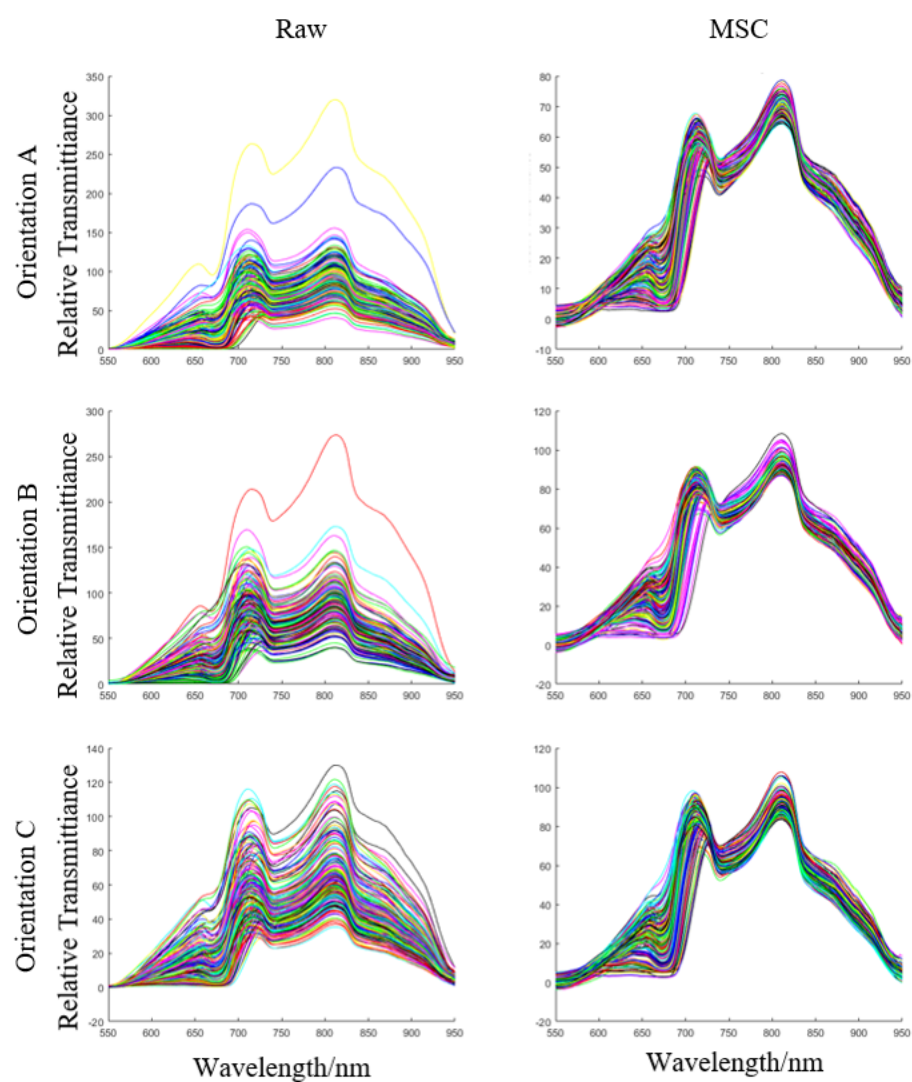
**Figure S1**



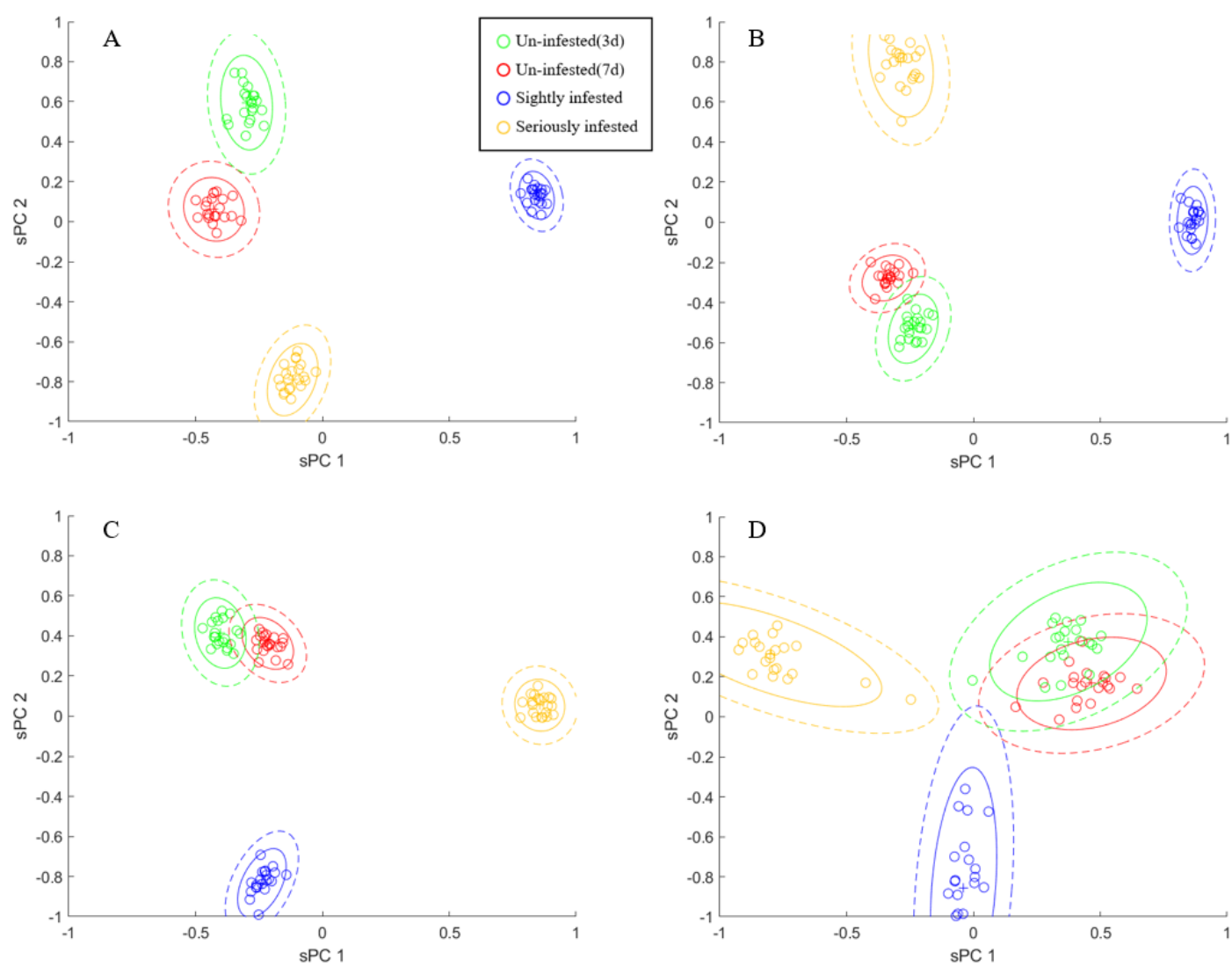
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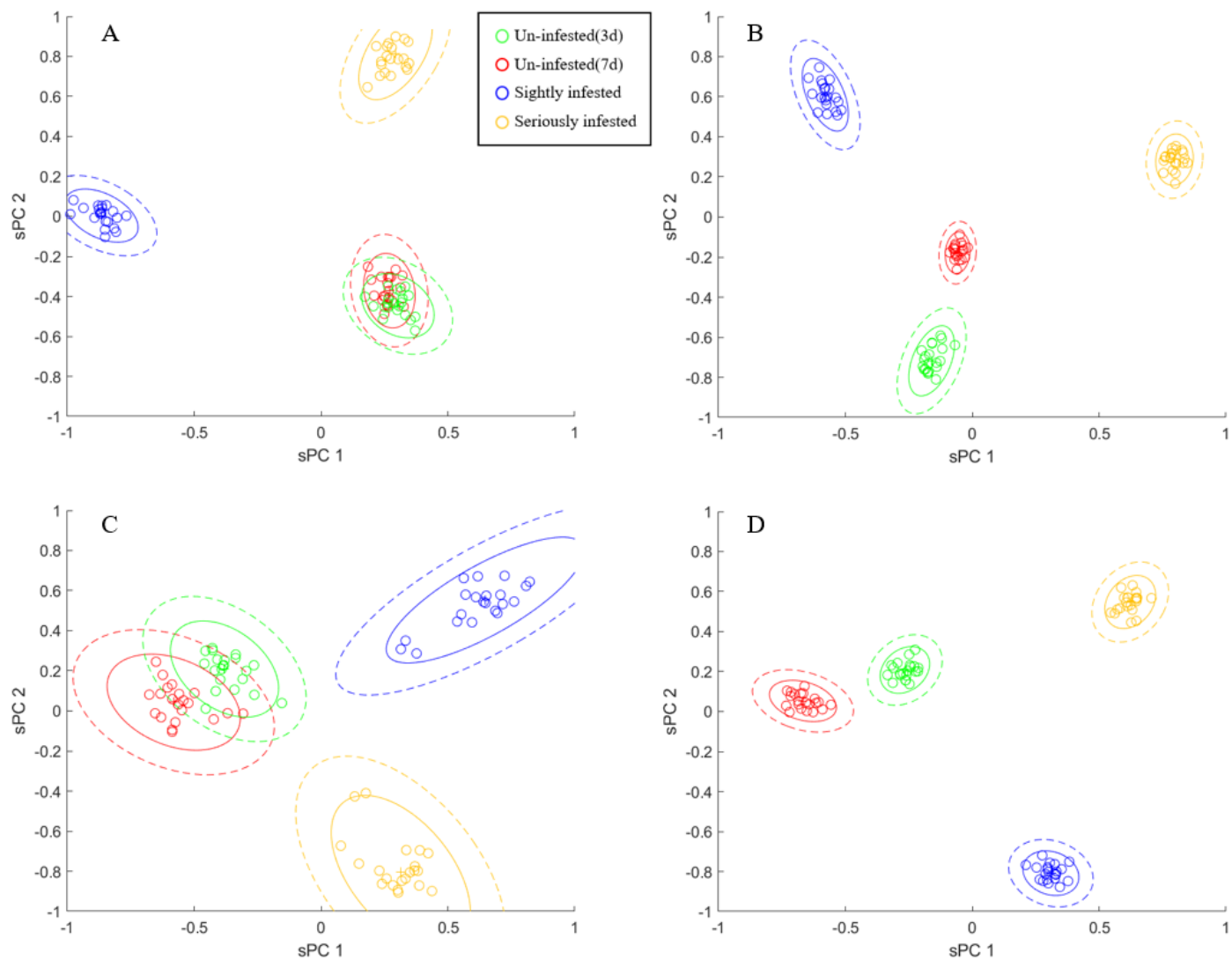
**Figure S3**



**Figure S4**



**Figure S5**



**Figure S6**



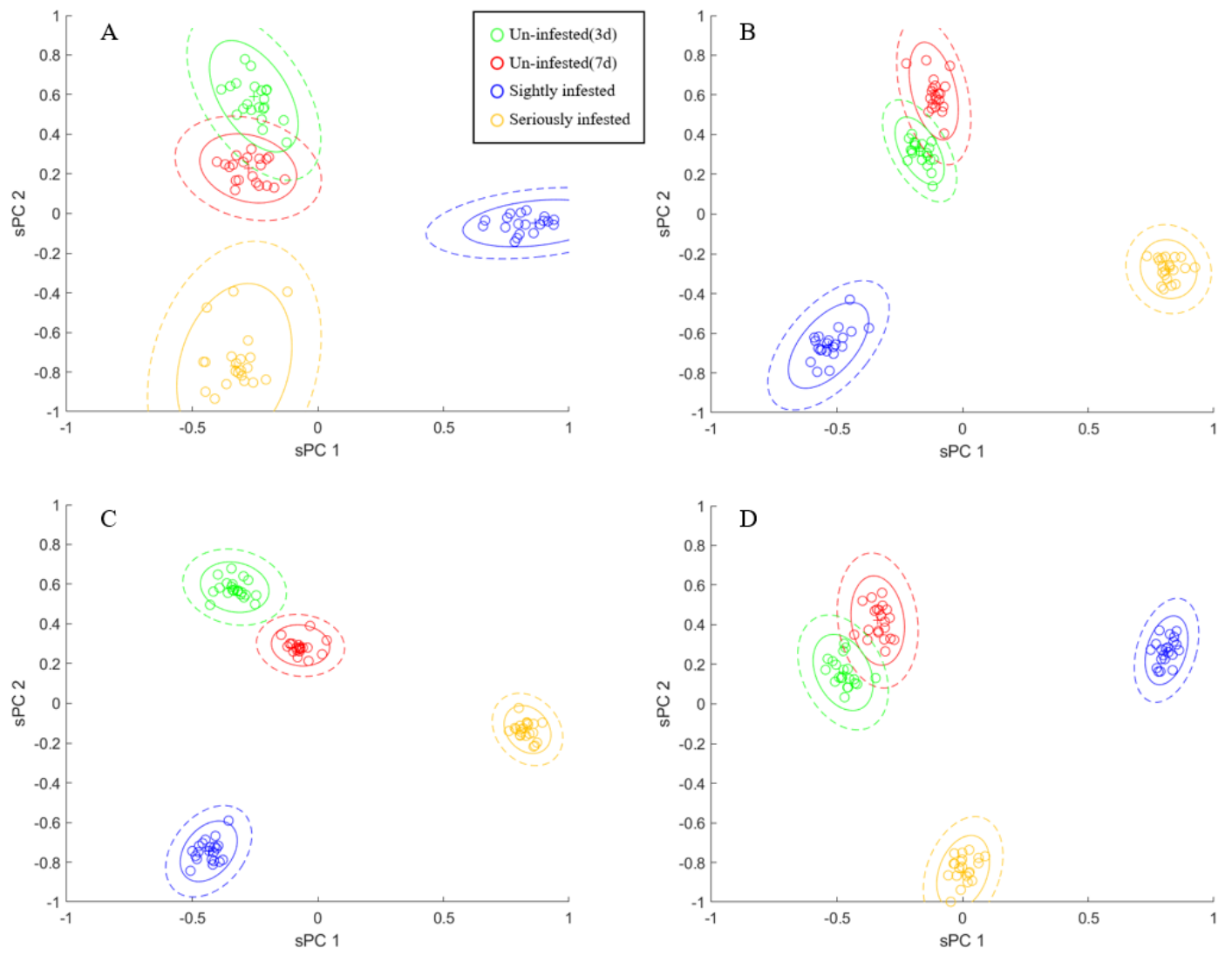


Figure S7

## Orientation A

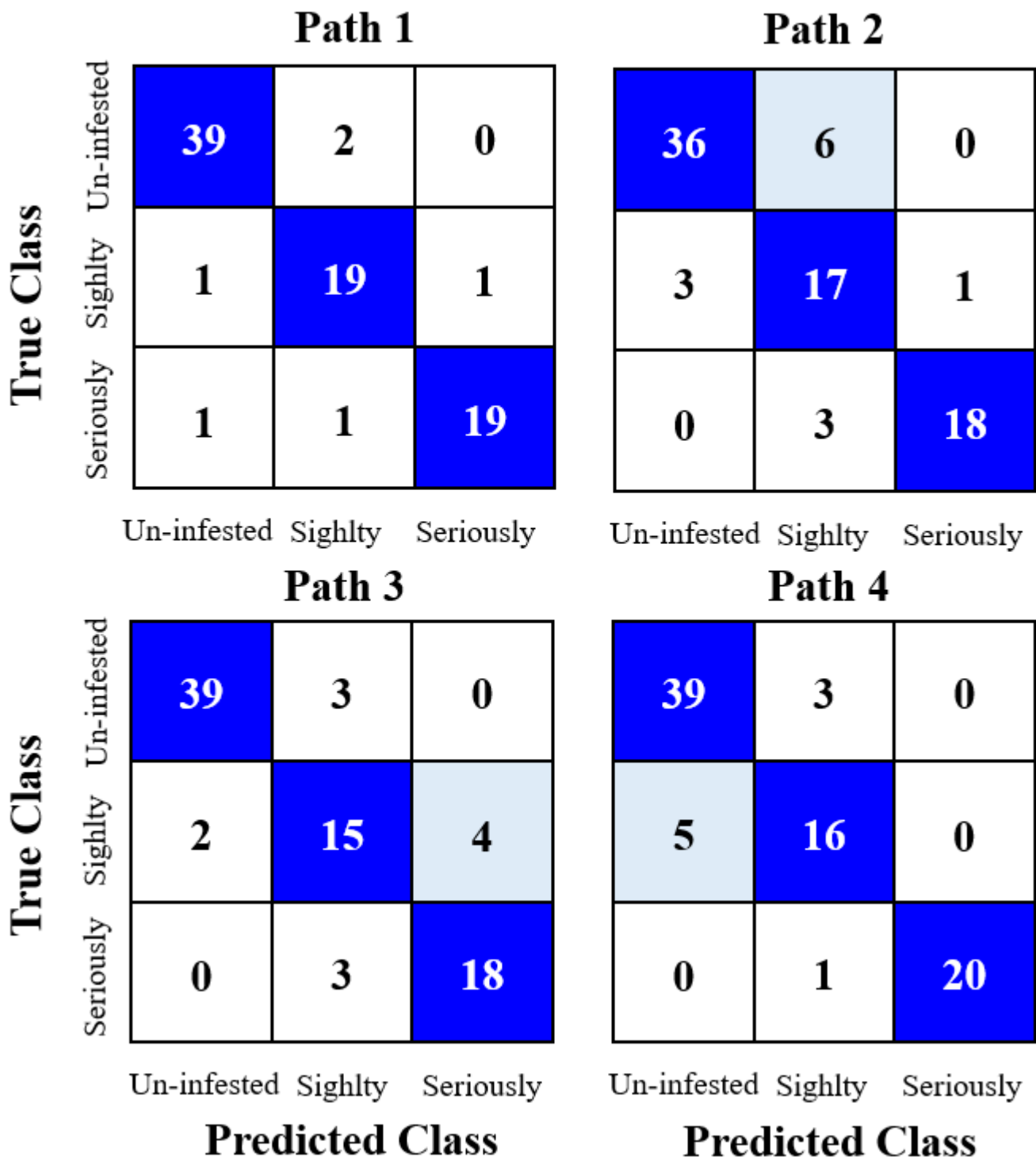


Figure S8

**Orientation B**

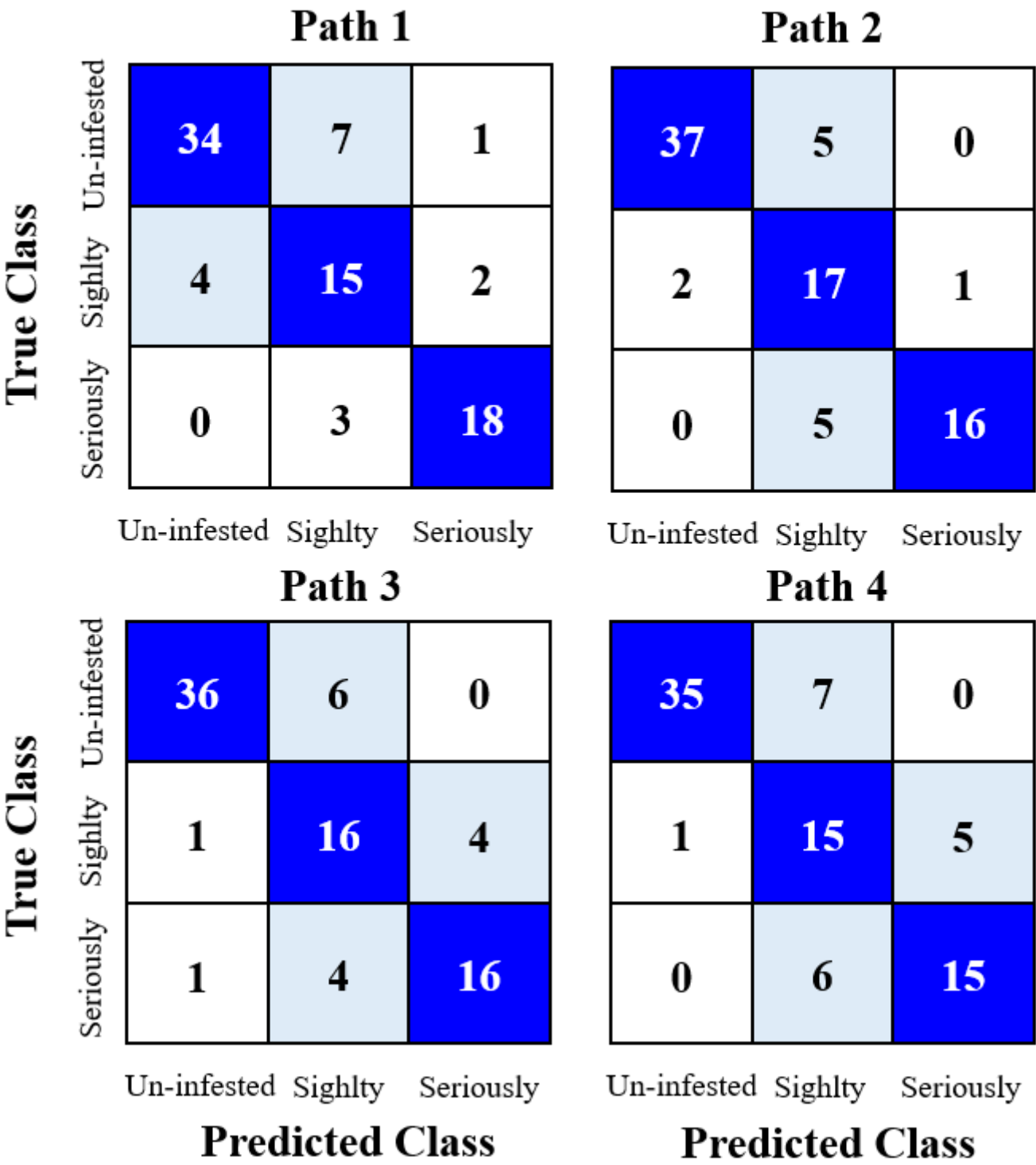


Figure S9

## Orientation C

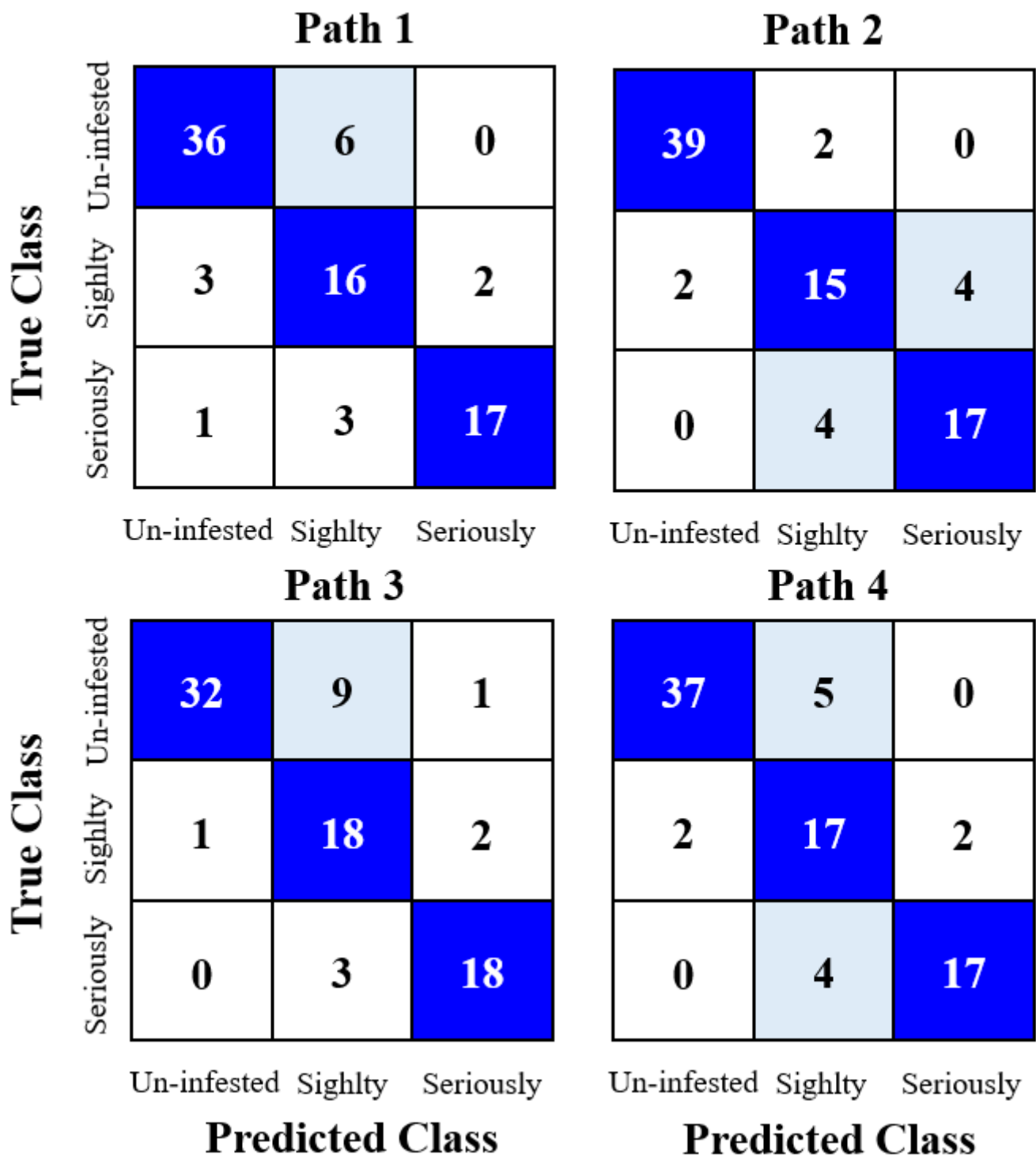
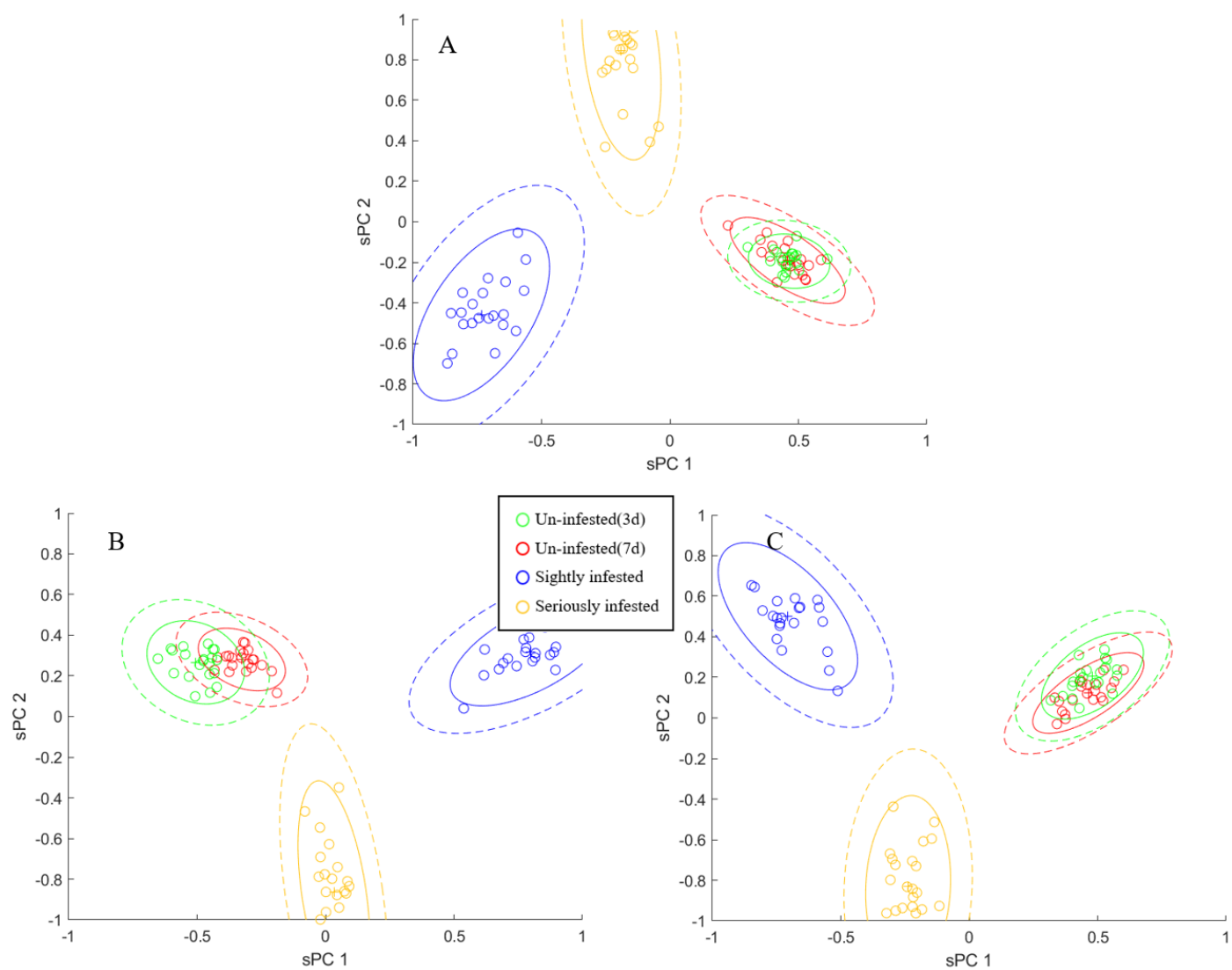
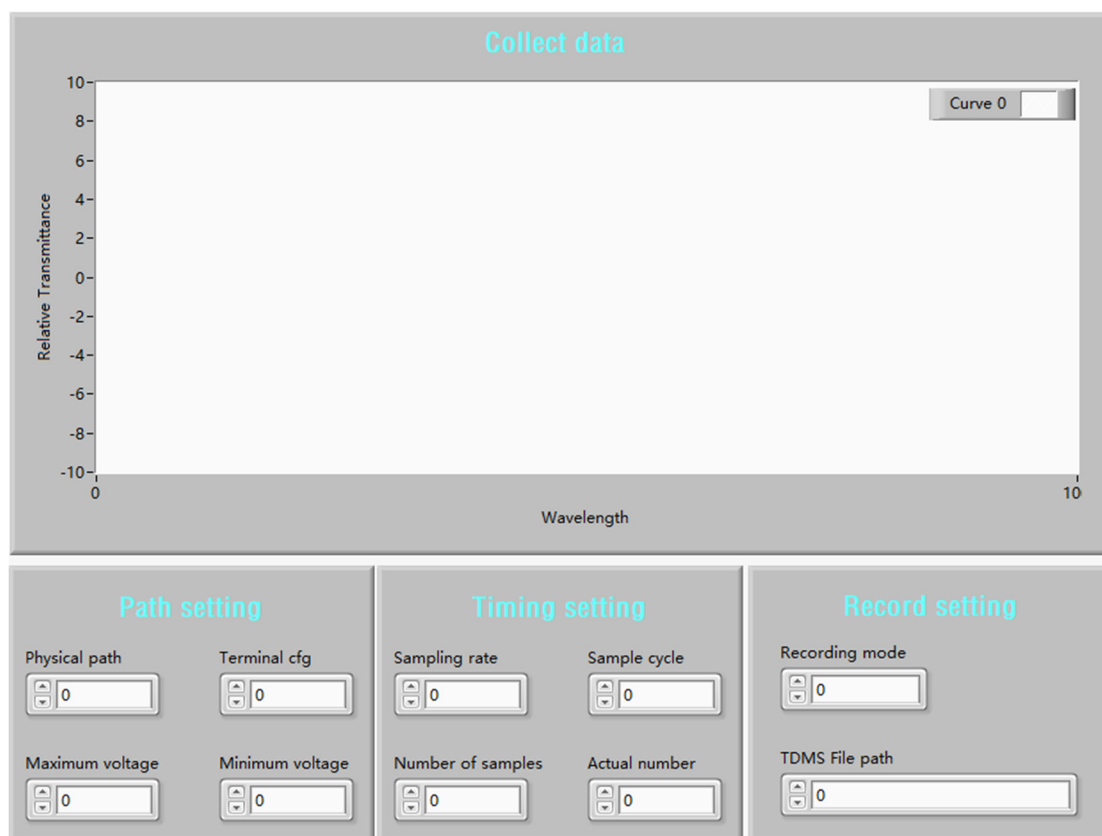


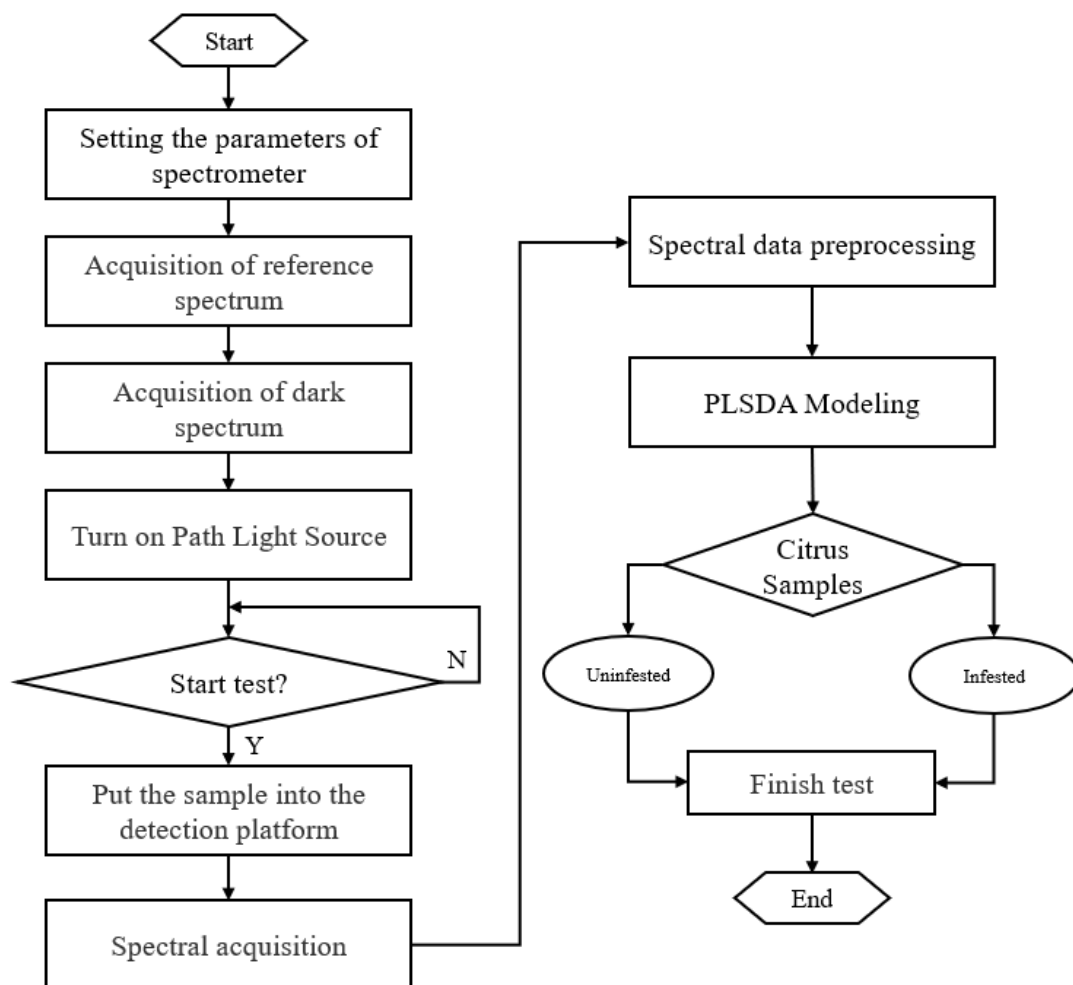
Figure S10



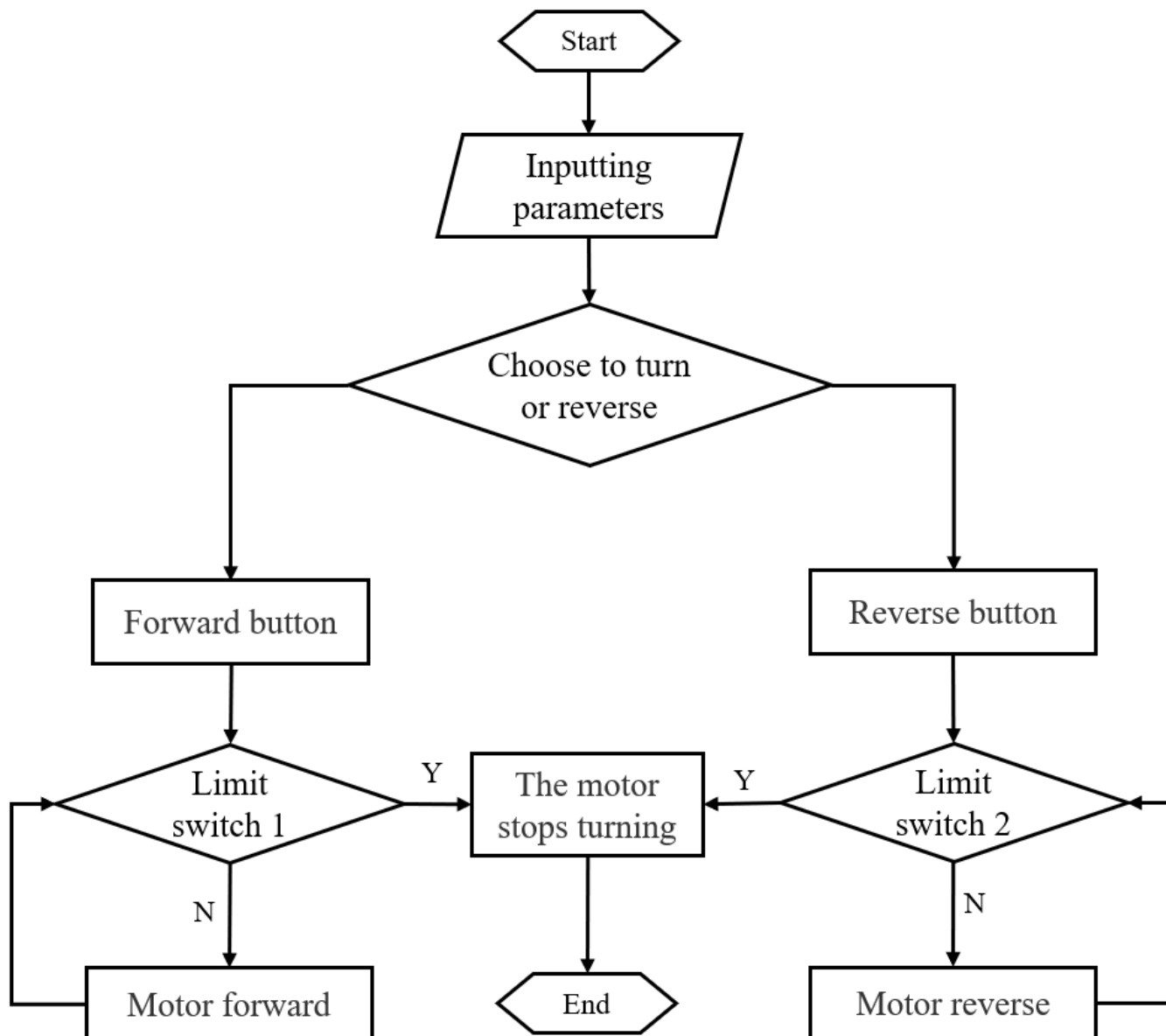
**Figure S11**



**Figure S12**



**Figure S13**



**Figure S14**