

## Supplementary Material

# **Rice Seed Vigor Detection Based on Near-Infrared Hyperspectral Imaging and Deep Transfer Learning**

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#### **1** Supplementary Figures



#### Supplementary Material



(C)

Figure. S1. The loss and accuracy curve of CNN model of Yongyou1540 rice seeds: (A) MixStyle with Yongyou12; (B) MixStyle with Suxiangjing100; (C) MixStyle with Longjingyou1212.



(A)







**Figure. S2**. Grad-CAM++ of each vigor gradient of CNN: Yongyou12 transfer to Suxiangjing100: (A) the weights of not aged; (B) the weights of aging 96h; (C) the weights of aging 192h.



(A)





**Figure. S3.** Grad-CAM++ of each vigor gradient of CNN: Yongyou12 transfer to Longjingyou1212: (A) the weights of not aged; (B) the weights of aging 96h; (C) the weights of aging 192h.









**Figure. S4**. Grad-CAM++ of each vigor gradient of CNN: Yongyou1540 transfer to Yongyou12: (A) the weights of not aged; (B) the weights of aging 96h; (C) the weights of aging 192h..









## (C)

**Figure. S5**. Grad-CAM++ of each vigor gradient of CNN: Yongyou1540 transfer to Suxiangjing100: (A) the weights of not aged; (B) the weights of aging 96h; (C) the weights of aging 192h.



(A)



(B)



**Figure. S6.** Grad-CAM++ of each vigor gradient of CNN: Yongyou1540 transfer to Longjingyou1212: (A) the weights of not aged; (B) the weights of aging 96h; (C) the weights of aging 192h.





(B)



**Figure. S7**. Grad-CAM++ of each vigor gradient of CNN: Suxiangjing100 transfer to Yongyou12: (A) the weights of not aged; (B) the weights of aging 96h; (C) the weights of aging 192h..







## (C)

**Figure. S8**. Grad-CAM++ of each vigor gradient of CNN: Suxiangjing100 transfer to Yongyou1540: (A) the weights of not aged; (B) the weights of aging 96h; (C) the weights of aging 192h..



(A)



(B)



**Figure. S9**. Grad-CAM++ of each vigor gradient of CNN: Suxiangjing100 transfer to Longjingyou1212: (A) the weights of not aged; (B) the weights of aging 96h; (C) the weights of aging 192h.







**Figure. S10**. Grad-CAM++ of each vigor gradient of CNN: Longjingyou1212 transfer to Yongyou12: (A) the weights of not aged; (B) the weights of aging 96h; (C) the weights of aging 192h..







## (C)

**Figure. S11**. Grad-CAM++ of each vigor gradient of CNN: Longjingyou1212 transfer to Yongyou1540: (A) the weights of not aged; (B) the weights of aging 96h; (C) the weights of aging 192h..







(B)



**Figure. S12**. Grad-CAM++ of each vigor gradient of CNN: Longjingyou1212 transfer to Suxiangjing100: (A) the weights of not aged; (B) the weights of aging 96h; (C) the weights of aging 192h.