A simple shoot-tip grafting practical method for virus-free passion fruit propagation at the farm level

Production | Implementation | Item: Passion fruit | Labor productivity enhancement

Outline

A practical technology for virus-free propagation of passion fruit seedlings at the farm level has been developed using a simple shoot-tip grafting.

Background/effect/note

In Asia, passion fruit (*Passiflora edulis*) is produced mainly in Indonesia, India, and Vietnam. Recently, passion fruit production is gaining attention as an alternative crop to tackle climate change in Japan. However, the occurrence of Passiflora latent virus (PLV) diseases is a major problem concern (Fig. 1). Virus infection can spread easily due to vegetative propagation via cuttings. Thus, securing virus-free plants is difficult due to infection of the mother stock used for propagation. We established a method for virus-free propagation of passion fruit from PLV-infected plants using a simple shoot-tip grafting method that can be easily introduced into the field without any aseptic technique and facility (Fig. 2). This method may be effective against other viruses and viral infection related symptoms of unknown cause in the production countries for the propagation of healthy seedlings.

Fig. 1. Viral infection-like symptoms observed in the leaves and fruits of passion fruit

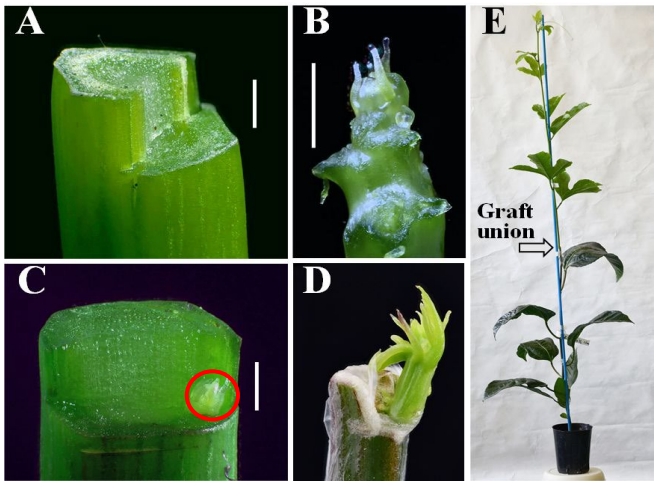

Fig. 2. In vivo shoot-tip grafting of passion fruit (bar = 1 mm)

A: Preparation of a rootstock.
B: The shoot-tip is used as a scion (0.2–1.0 mm)
C: The excised shoot-tip attached on the cambium of the rootstock and covered with laboratory film to prevent drying.
D: Sprouting of the scion in approximately one month.
E: After approximately two months, the growing scion is ready for virus detection.

Technical details:
https://www.jircas.go.jp/en/publication/research_results/2021_c02

Contact
info-greenasia@jircas.affrc.go.jp

Japan International Research Center for Agricultural Sciences