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Supplementary Figure 1 Morphology of unicellular trichomes (Breuer et al., 2009;Guan et al., 2014) .

(A) SEM observation of *Arabidopsis* trichomes, 10-day-old wild-type (Columbia [Col]) first true leaf. Scale bar = 400 μm; (B) Fibers on cottonseed of upland cotton (*Cossypium hirsutum* L.acc.TM-1). Phytogen 800. Scale bar of = 1 cm.

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Supplementary Figure 2 Microscopic observation of trichomes of wild-type rice (Wang et al., 2013).

(A) The adaxial surface at the first leaf stage; (B) Leaf adaxial surface at the third leaf stage; (C) Leaf abaxial surface at the third leaf stage; (D) Leaf adaxial surface at the sixth leaf stage; (E) Leaf adaxial surface at the sixth leaf stage; (F) Leaf adaxial surface at the flowering stage; (G) A higher magnification of leaf adaxial surface was observed during the flowering stage (in F); (H) Leaf abaxial surface at the flowering stage; (I) the tip of rice hull. Scale bars = 40 μm in A, B, F, H and I; 30 μm in C, D, E, and G. Arrow: glandular hair; arrow head: microhair; empty arrow head: macrohair.

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Supplementary Figure 3 Morphological characteristics of eight (I–VIII) types of trichomes on cucumber fruits. Scale bar =  500 μm (II-IV); 100 μm (V); 20 μm (VI); and 5 μm (I, VII and VIII) (Xue et al., 2019).

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Supplementary Figure 4 Glandular trichomes of tobacco (Amme et al., 2005;Liu et al., 2018).

(A) Scanning electron microscopy analysis of long-stalked glandular trichomes (LGT), and short-stalked glandular trichomes (SGT) in wild-type leaves. Scale bar = 1.00 mm; (B) Scanning electron microscopy analysis of LGT in wild-type leaves. Scale bar = 500 μm; (C) Multicellular stem and head of LGT; (D) Unicellular stem and multicellular head of SGT.

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Supplementary Figure 5 Different types of trichomes of tomato (Xu et al., 2018;Chalvin et al., 2020).

(A) Type I trichome of a tomato stem observed with a zoom stereomicroscope. Scale bar = 500 μm; (B) Type IV and VI trichomes of a tomato leaf (adaxial face) observed with a scanning electron microscope. Scale bars = 100 μm; (C) Type IV and VI trichomes of a tomato leaf (adaxial face) observed with a scanning electron microscope. Scale bars = 100 μm; (D) Type IV, V, VI and VII trichomes of wild-type tomato stem surface. Scale bars = 200 μm.

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Supplementary Figure 6 Glandular trichomes of *Artemisia annua* (Chalvin et al., 2020).

(A) The trichomes of *A. annua* leaf (adverse) were observed by scanning electron microscope. Scale bar = 100 μm; (B) The trichomes of *A. annua* leaf (adverse) were observed by scanning electron microscope. Scale bar = 100 μm.

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