

Figure S1. An overview of tobacco stem thickening. **(A)** Cross section of tobacco stem with TBO staining. The light green arc arrow indicates the primary stage (the same day of the stem marked). The green arc arrow indicates the transition stage (four days after the stem is marked). Red arc arrows indicate the secondary stage (eight days after the stem is marked, typical secondary structure formation of the stem). Scale bar of **(A)** is 2 mm. **(B)** Stem girth increment in each time period after marking.

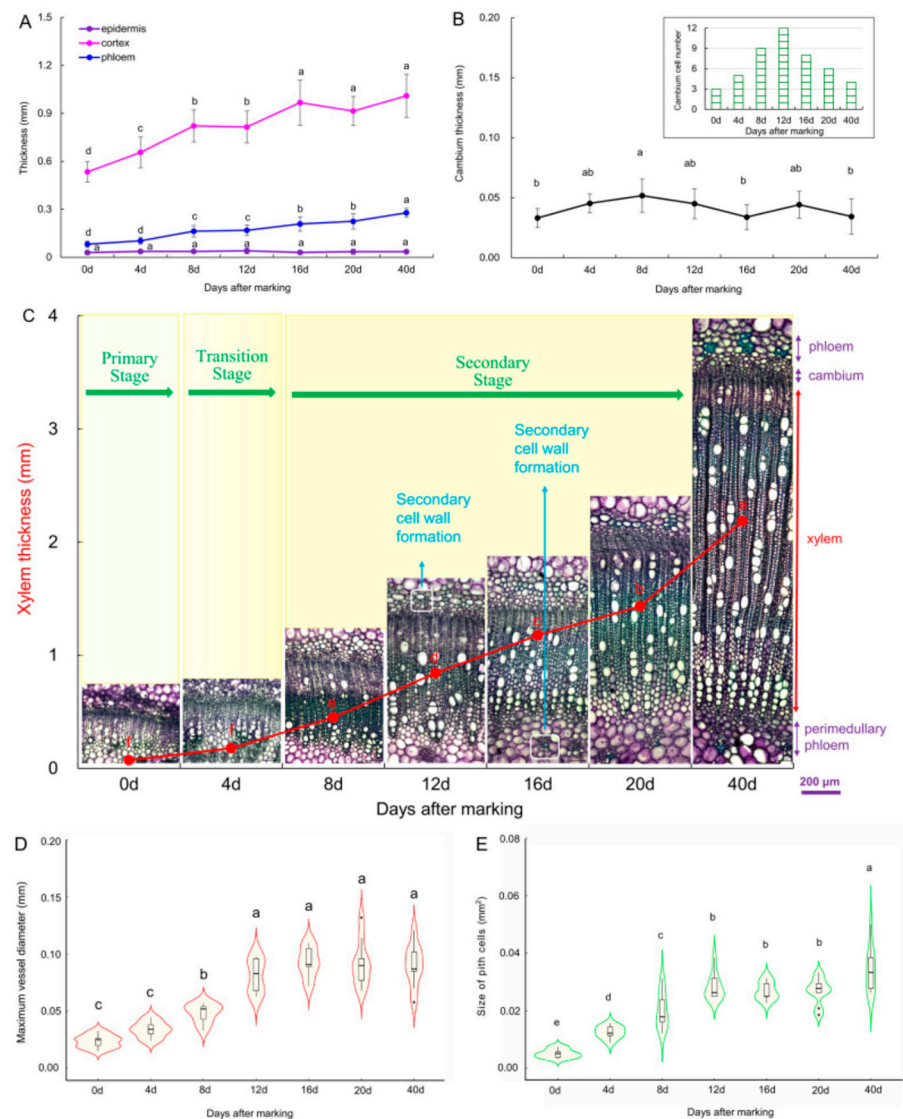


Figure S2. Development law of anatomical structure of tobacco stem. (A) Development law of cortex, cortical parenchyma cell, and phloem. (B) Development law of cambium; the embedded diagram shows the cambium cell number. (C) Development law of xylem. Green arrows represent the development process of tobacco stem, blue arrows represent the initial date of phloem fiber secondary cell wall formation, and the red broken line represents the xylem thickening after marking. The scale bar of the anatomical structure of the xylem is 200 μm . (D) Development of maximum vessel diameter after marking. (E) Development of the size of pith cells after marking. The bars represent the standard error of the mean, and the letters above each bar represent significant differences in different treatments ($p < 0.5$).