**Supplementary files legend**

**Figure S1.** ModX plot of 6 celery samples and X/Y Overview Plot PCA for 10 compounds. (A) ModX plot of 6 celery samples; DModX is the distance of an observation in the training set to the x model plane or hyper plane. DModX is proportional to the residual standard deviation(RSD) of the xobservation. W: white celery; G: green celery; R: red celery; RO: root; P: petiole; L: leaf; (B)X/Y Overview Plot PCA for 10 compounds; The X/Y Overview Plot PCA shows the cumulated R2 and Q2 values for each variable of the training set(X for PCA). The 10 compounds are respectively β-Myrcene, D-Limonene, (E)-β-Ocimene, β-selinene, γ-Terpinene, Caryophyllene, Camphene, 2,4,6-Octatriene, 2,6-dimethyl-, (E,Z)-, 2-methyl-5-pentylcyclohexa-1,3-diene and 2,6-dimethyl-2,4,6-octatriene.

**Table S1** Sequences of primers used in qRT-PCR.

**Table S2** Basic information of AgTPS gene family members in celey.

**Table S3** Ka, Ks and Ka/Ks of paralogous gene pairs of *AgTPS* genes.

**Table S4** *Cis*-acting elements in the promoter region of *AgTPS* genes in celery

**Table S5** GO enrichment function annotation of *AgTPS* genes in celery

**Table S6** Six celery samples identified complement of volatiles (Qualitative score≥85).