

Provisional key to the British *Ranunculus* stem miners (including *P. caulinaris*)

1. Whole mine under epidermis of stem2
 Mine initially under epidermis of stem, soon becoming internal or wholly internal;
 pupariation within lumen of stem4
2. Pupariation within mine; posterior spiracles 3-branched*Ophiomyia ranunculicaulis*
 Pupariation external; reared imagines required.....3
3. Distiphallus with 5-8 coils, coiling upwards*.....*Phytomyza ranunculi*
 Distiphallus with 3 coils, coiling downwards*.....*Phytomyza caulinaris*
4. Check by rearing imagines;
 Imago with first and second antennal segments yellow, third segment black, 1 *ors* [if upper
ors present, greatly reduced], 1 *ori*.....*Phytomyza ranunculi*
 Imago otherwise.....5
5. Proboscis conspicuously elongate.....6
 Proboscis short, normal, third antennal segment distinctly elongate.....*Phytomyza nigritula*
6. Wings conspicuously pale.....*Phytomyza albipennis*
 Wings hyaline, normal.....7
7. Third antennal segment small, surstyli free, abnormally extended ventrally into a flap-like
 appendage*Phytomyza evanescens*
 Third antennal segment larger, surstyli normal*Phytomyza enigmoides*

* Some workers of the Agromyzidae believe that the upward or downward coiling of the distiphallus is a characteristic that should not define a species (von Tschirnhaus *pers. comm.*):

At rest, the coiling of the distiphallus lays horizontally within the abdominal cavity, whereas when outside the body, the coiled distiphallus, in its natural morphological position, is perpendicular; there is not enough space within the abdominal cavity to store the distiphallus perpendicularly.

The upward or downward coiling is not morphologically a true representation but is really caused by other factors: the lack of space within the abdominal cavity, or the dissection process, or the embedding in mounting medium placing forcible contortion upon the distiphallus (Fig. 5). These factors result in the base of the long distiphallus turning 90° to the left or right, causing the coiling to be in an upward or downward direction when the pressed/flattened disk of the coils is viewed from above.

Therefore, the upward or downward direction of the coiling is considered to be artificial, an incidental effect, which should not define a species. Also, natural variation may account for the number of coils present. The true status of these two species and others in the *ranunculi*-group may not be possible to determine without the results of barcoding from reared and fresh material kept under low temperatures in absolute ethanol.