

**Table S1.** Comparative morphological and reproductive characteristics of *Pellia* and *Apopellia* species. The table presents key diagnostic features, including sexual systems, chromosome numbers, cellular structures, reproductive organs, and spore characteristics. Data compiled from taxonomic and morphological studies (Schuster 1966, 1981; Schütz et al., 2016). Unknown values indicate insufficient data in the literature.

Genus	<i>Pellia</i>					<i>Apopellia</i>		
Species	<i>Pellia epiphylla</i>	<i>Pellia borealis</i>	<i>Pellia appalachiana</i>	<i>Pellia columbiana</i>	<i>Pellia neesiana</i>	<i>Apopellia endiviifolia</i>	<i>Apopellia megaspora</i>	<i>Apopellia alpicola</i>
Sexual system	Monoicous (paricous)	Monoicous (paricous)	Dioicous	Dioicous	Dioicous	Dioicous	Dioicous	Dioicous
Chromosome number	9	18	9	Unknown	9	9	9	9
Apical cell	Hemidiscoid					Wedge-shaped		
Thickening bands	Present in the cell walls of the thallus	Present in the cell walls of the thallus	Absent	Absent	Present in the cell walls of the thallus	Absent		
Slime hairs	1–2 cells, located ventrally and dorsally on the thallus, can also be found on the walls of the gynoecium and at the bottom of the archegonia					2–8 cells, clustered on the ventral side of thallus		
Archegonium	Clustering horizontally to ascending on the receptacle					Clustering erectly on the receptacle		
Archegonia number	Up to 10 per cavity					10–30 per cavity		
Male tubercles aperture	Cells papilliforme					Cells inconspicuous		
Antheridium	Dispersed dorsally along midrib, diffuse, inconspicuous, developed near apex usually somewhat behind the pseudoperianth as a group of slightly elevated, often reddish pustules	Similar to <i>P. Epiphylla</i>	Male plants not distinguishable from <i>P. Neesiana</i>	In groups along midrib	Dispersed along the length on dorsal side of midrib in 2–3 rows of pustule-like reddish tubercles	Irregularly dispersed	Aggregated in tumid, weakly demarked disks, not dispersed	Unknown
Pseudoperianth	Flap-like, lying horizontally over the gynoecial cavity, mouth entire, sinuate to lobulate	Similar to <i>P. Epiphylla</i>	Nearly horizontal posteriorly, low, forming an ascending, more or less flaring, lobulate-incised, somewhat fluted flap developed only posterior to the gynoecium	Forming a complete ring, lower in front side, usually split into lobes, posteriorly 2–4.5 mm, anteriorly 0.5–2.5 mm high	Short, cylindrical, mouth irregularly lobulate, entire, crenulated or with scattered 1–2-celled teeth	Large, erect or almost so, short-cylindrical to campanulate, weakly or not incised, lobulate to ciliate-laciniate at mouth	Short-cylindrical to campanulate, mouth strongly incised-lobulate and fimbriate or ciliate-laciniate	High posteriorly, low anteriorly, horizontal prior to fertilisation, flap-like, much as in <i>Pellia neesiana</i> , but laciniate-ciliate on margins
Calyptra	Scattered hairs, each consisting of 1–2 cells					Smooth		
Spores	50–60 x 70–116 µm	75 x 104–157 µm	Unknown	61–76 x 98–133 µm	50–68 x 70–116 µm	35–45 x 70–80 µm	64–80 x 100–120 µm	Unknown
Capsule	Subspherical, blackish green, capsule wall (2)3-layered	Similar to <i>P. Epiphylla</i>	Unknown	Spherical, dark green; capsule wall 2-layered	Subspherical, blackish green, capsule wall 2-3 layered	Capsule wall 2–3 layered	Capsule wall 3–4 layered	Unknown
Elaters	7–8 µm in diameter	10–12 µm in diam.	9–11 µm in diam., 3–4-spiral	9–11 µm in diameter, 3–4-spiral	7–8 µm in diam., mostly 2-spiral	10–12 µm in diam., hardly concerted	9–12 µm in diam., mostly contorted	Unknown