



Hypnum

Hypnum is a genus of mosses belonging to the family Hypnaceae.^[1]

The genus has cosmopolitan distribution.^[1] A common name sometimes used for *Hypnum* moss is "carpet moss".^[2]

Distribution

Hypnum species are found on all continents except for Antarctica.^[3] Species are typically found in temperate regions.^[3]

Habitat

Hypnum species are typically found in moist forest areas on rotting logs, while some species are aquatic.^{[2][4]} Species can also be found living on soil, rocks, and live trees.^[4]

Identification

Identifying moss species in the field to the genus *Hypnum* by using a hand lens is considered quite feasible since most *Hypnum* species share common features with one another.^[3]

A very useful defining characteristic of *Hypnum* mosses are their leaves which are often falcate-secund (meaning that they are sickle-shaped and point to one side of the plant).^[3]

Another distinguishing characteristic of *Hypnum* mosses is the thick, green mats that they form, which earns them the common name "carpet moss".^[2] Distinguishing between different *Hypnum* species can be accomplished mainly by gametophytic features and sometimes by sporophytic features.^[3]

Hypnum



Hypnum cupressiforme

Scientific classification

| | |
|-----------|--------------------------------------|
| Kingdom: | <u>Plantae</u> |
| Division: | <u>Bryophyta</u> |
| Class: | <u>Bryopsida</u> |
| Subclass: | <u>Bryidae</u> |
| Order: | <u>Hypnales</u> |
| Family: | <u>Hypnaceae</u> |
| Genus: | <u><i>Hypnum</i></u> <u>Hedw.</u> |

Description

Gametophyte characteristics

General form

Gametophytes range from small to large in size.^[3] Gametophytes are green, yellowish, or brown in colour, with the colouration appearing dull or glossy.^[3] Gametophytes can sometimes form tufts.^[3] Growth forms of *Hypnum* mosses vary from creeping to erect.^[5]

Stem and branching patterns

Stems have pseudoparaphyllia.^[3] Branching patterns include nearly unbranched, irregularly branched, or 1- or 2- times pinnate.^{[5][3]}

Leaves

Branch leaves and stem leaves have similar shapes.^[5] Leaves are secund or falcate-secund, broadly to narrowly ovate, and can be plicate.^[3] Leaf bases can sometimes be decurrent.^[3] Sometimes leaf margins are toothed on the distal region.^[3] Leaf margins can be recurved proximally and are usually flat (i.e., not recurved) at the distal edge.^[3] Leaf margins can sometimes be sinate at the proximal region.^[3] Leaf apices are either acute or acuminate.^[3]

Despite having similar shapes, branch leaves are smaller than stem leaves.^[5]

Leaves have a double costa or an obscure costa that spans 1/4 of the leaf's length.^[3] Laminal cells are exclusively smooth.^[3] Alar cells in the leaf bases are typically differentiated and range in shape from hexagonal, triangular, quadrate, or sub-quadrate.^[3]

The outer perichaetial leaves are bent while the inner perichaetial leaves are erect.^[3] In terms of shape, perichaetial leaves can be ovate, lanceolate, or subulate.^[3] Apices of perichaetial leaves are acuminate.^[3]

Calyptra

Calyptra are exclusively naked and have no hair.^[3]

Sporophyte characteristics

Seta

Setae are long and range in colour from yellowish to reddish.^{[5][3]}

Sporangium

Orientation of the sporangium can be erect, inclined, or horizontal.^{[5][3]} Sporangium shape varies from cylindrical to ovoid.^[5] The sporangium is also typically curved.^[3] There tends to be a contraction below the sporangium opening.^[3] All species have two rows of peristome teeth.^[3] The outer surface of exostome teeth have zigzag lines as well as lamellae.^[3] The annulus is either 1-3- times seriate or has very minimal amounts of cell differentiation.^[3] The operculum is conical to round in shape.^[3]

Spores produced by the sporangium are round and can be smooth or papillose in texture.^[3]

Reproduction

In terms of sexual reproduction, *Hypnum* mosses are autoicous, dioicous, or phyllodioicous.^[3] *Hypnum* mosses do not have any specialized forms of asexual reproduction.^[3]

Human use

Historically, *Hypnum* mosses were used to stuff bedding because they were falsely believed to have sleep-inducing properties.^{[2][3]}

Hypnum curvifolium, commonly known as "sheet moss", is used by some florists.^[6]

The CityTree air filter, present in many European cities, uses *Hypnum* to capture and consume pollutants.^[7]

Species

The number of species in the genus is unresolved. Depending on the source, the number of species ranges from around 50 to 220,^{[3][5]} or (according to GBIF) up to 773.^[8]

Some of the species in the genus are:

- *Hypnum acanthoneuron* Schwägr.^[1]
- *Hypnum acanthophyllum* Mont.^[1]
- *Hypnum circinale* Hook.^[9]
- *Hypnum crispifolium* Hook.^[9]
- *Hypnum cupressiforme* Hedw.^[9]
- *Hypnum curvifolium* Hedw.^[10]
- *Hypnum involuta* (Hedw.) P.Beauv.^[11]

Former species

- *H. leptothallum* (Müll.Hal.) Paris,^[11] now a synonym of *Eurohypnum leptothallum* Ando, 1966^[12]

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