Quick guide to common desmid genera

Desmids belong to the Streptophyta/Charophyta group of green algae in the class Zygnematophyceae, which also includes the filamentous algae Spirogyra, Mougeotia, and Zygnema. Most desmids are single-celled; a few grow as unbranched filaments. In most genera the cells are divided into two semicells, one the mirror image of the other.

**Part A**

- Cells solitary **YES** → Cell wall in one piece
  - **NO** → Cell wall in two or more pieces (not always easy to see)
- Cells in filaments
  - **YES** → Chloroplast spiral
    - **NO** → Chloroplasts with notched edges
    - **YES** → Chloroplasts star-like
    - **NO** → Chloroplasts star-like
  - **NO** → Cell walls not constricted or notched at the centre
    - **YES** → Cells clearly constricted at the centre
      - **NO** → Ends of semi-cells expanded; long chloroplasts
        - **NO** → Cells ends rounded, not expanded
          - **YES** → Penium (Penium has thick cell walls with striae, 1 or 2 chloroplasts per semicell, slight central constriction may be present)
          - **NO** → CONTINUED (Part B)


CONTINUED (Part C)

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continued from Part A

Cell walls constricted or notched at the centre

YES

Cells short (length less than 3 x width)

YES

Apex with a deep notch

YES

Actinotaenium

NO

Apex rounded or square

NO

Tetmemorus

Cells elongated

NO

Pleurotaenium

Cells not elongated; some other shape (circular, irregular)

NO

Cells not elongated; some other shape (circular, irregular)

YES

Cells with deeply notched margins, flattened in cross-section.

NO

Cell margins not deeply notched, cross-section not at all flat

YES

Micrasterias

Apex of semicells notched or depressed; projections on cell surface

YES

Euastrum

Not notched or depressed at apex (except for the broad area between spines or projections)

CONTINUED (Part C)

Note: species in several desmid genera (e.g., Penium, Closterium, Actinotaenium) typically have brown or yellow-coloured cell walls, on all or part of the cell, sometimes ribbed or otherwise sculptured. The colour and patterning is not characteristic of any genus.

NB E. sphyroides is one of just two species in NZ that lack an apical notch
Quick guide to common desmid genera  Part C

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**Cosmarium**
A large and diverse genus. Over 200 species in NZ.

**Desmidium**
Note mucilage sheath in this species (*D. grevillei*).

**Bambusina**
(Cell walls only.)

**Staurodesmus**
(Spines may be forked)

**Staurastrum**
A large and diverse genus; 3 to 9 angles on each semicell

**Xanthidium**

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