The genders of compound generic names ending in "*-ceras*" and "*-ceros*"

Michael D. Guiry, *AlgaeBase, Ryan Institute, National University of Ireland, Galway, H91 TK 33, Ireland* (correspondence: michael.guiry@nuigalway.ie)

Kanchi N. Gandhi, *Harvard University Herbaria, 22 Divinity Avenue, Cambridge, MA 02138, USA*

Art. 62.1 of the Shenzhen Code (ICN, Turland & al. 2018) specifies that "A generic name retains the gender assigned by nomenclatural tradition, irrespective of classical usage or the author's original usage. A generic name without a nomenclatural tradition retains the gender assigned by its author …". Nevertheless, it may or may not be explicitly clear which gender an author intended.

Furthermore, Art. 62.2 additionally states that "Compound generic names take the gender of the last word in the nominative case in the compound (but see Art. 14.11). If the termination is altered, however, the gender is altered accordingly." More often than not the gender of a name formed from a Latin word is either self-evident (as in Group A adjectives, a generic name ending in "-us" is masculine; "-a" is generally feminine; "-um" is generally neuter) or easily established from consultation with the original publication.

Establishing the genders of compound generic names formed from Greek names, however, often poses a challenge, not least because modern algal taxonomists have little or no knowledge of classical Greek.

Art. 62.2 helpfully specifies the gender of various Greek suffixes:

> *"(a)* Compounds ending in *-botrys, -codon, -myces, -odon, -panax, -pogon, -stemon,* and other masculine words, are masculine.
>
> *(b)* Compounds ending in *-achne, -chlamys, -daphne, -glochin, -mecon, -osma* (the modern transcription of the feminine Greek word οσμή, osmē), and other feminine words, are feminine. An exception is made in the case of names ending in *-gaster,* which strictly speaking ought to be feminine but are treated as masculine in accordance with tradition.
>
> *(c)* Compounds ending in *-ceras, -dendron, -nema, -stigma, -stoma,* and other neuter words, are neuter. An exception is made for names ending in *-anthos* (or *-anthus*), *-chilos (-chilus* or *-cheilos),* and *-phykos (-phycos* or *-phycus),* which ought to be neuter, because that is the gender of the Greek words άνθος, anthos, χείλος, cheilos, and φύκος, phykos, but are treated as masculine in accordance with tradition."

The most common error made by phycologists and other botanists is to treat compound names with "*-nema*" as feminine, and such an assessment is made on the assumption that the case ending in "*-nema*" is "*-a*".

While compounds ending in "*-ceras*" are neuter, nothing is said in the ICN of compounds that end in "*-ceros*". This is most apparent in the compound generic names *Chaetoceros* Ehrenberg and *Zygoceros* Ehrenberg, both diatoms. Ehrenberg (1839: 156) proposed *Zygoceros* (*Eupodiscaceae*), as a monospecific genus with its type species as *Z. rhombus* Ehrenberg (as "*Rhombus*", wheel), and the epithet is treated as a second declension noun in apposition by the author as it is capitalised.

Subsequently, Ehrenberg (1844: 198) published *Chaetoceros* and provided a Latin description headed by the title "*Chaetoceros Nov. Gen. Fadenhörnchen*", the last term apparently a newly created common name, meaning "thready small horn." Ehrenberg (1844: 198, 200) included two valid species names in his new genus, *Chaetoceros dichaeta* Ehrenberg (as "Dichaeta", two bristly horns) and *Chaetoceros tetrachaeta* Ehrenberg (as "Tetrachaeta", four bristly horns) with epithets intended as first declension nouns in apposition and thus gave no indication of his intended gender of the two generic names. Boyer (1927: 104) designated *Chaetoceros tetrachaeta* Ehrenberg as the lectotype.

Over the years, authors have mostly treated the generic name *Chaetoceros* Ehrenberg as neuter, seemingly assuming that as names compounded with "-*ceras*" are neuter, names compounded with "-*ceros*" must also be neuter. Other authors appear to have assumed that the name is feminine as the two species names included by Ehrenberg seem to be feminine adjectives, not realising that they were nouns in apposition that retain their own gender. Ehrenberg generally capitalised nouns, as he did for the binomials mentioned above.

In the on-line *Index Nominum Genericorum*, generic names compounded from "-*ceros*" displayed all three genders, for example:

Masculine
- *Anthoceros* Linnaeus. LT.: *A. punctatus* Linnaeus.
- *Dendroceros* Nees. LT.: *D. crispatus* (W.J.Hooker) Nees

Feminine
- *Oxyceros* Loureiro. LT.: *O. horrida* Loureiro

Neuter
- *Monoceros* Goor. T.: *M. isthmiiforme* Goor
- *Gonioceros* H.Peragallo & M.Peragallo. T.: *G. armatum* (T.West) H.Peragallo & M. Peragallo

In order to find a classical basis for assigning the appropriate gender to generic names compounded with "-*ceros*", we consulted with a classical botany expert, Robert Rice, who concluded that such names are masculine. He could not find any name of plants, algae or fungi in ancient Greek or classical Latin with the ending κερως, (*ceros/cerus*). However, he referred to *ῥινοκέρως* (genitive *ῥινοκέρωτος*), rhinoceros or horn-nose, masculine, which became in Latin *rhinoceros*, genitive *rhinocerotos* (Pliny) or -*is* (Martial), again masculine, which was adopted by Linnaeus (1758: 56) as the genus name for the Indian and African rhinoceros and seemingly treated as masculine or feminine but not neuter [*Rhinoceros unicornis* Linnaeus, 1758 and *Rhinoceros bicornis* Linnaeus, 1758]. The second example is *αἰγοκέρως* masculine, capricorn (literally goat-horned), in Latin, *aegoceros,* genitive *aegocerotis* (Lucretius) *or aegocerotos* (Seneca), masculine. Thus, there is no known example in classical literature to indicate that these compound generic names should be treated as anything other than masculine.

In the absence of any firm evidence to the contrary, we recommend that compound generic names ending in "-*ceros*" be treated as masculine.

We are most grateful to Robert Kennedy Rice, President of the Passiflora Society International for his scholarly advice, but the opinions expressed above are solely our responsibility.

Boyer, C.S. (1927). Synopsis of North American Diatomaceae. Part I. Coscinodiscatae, Rhizosolenatae, Biddulphiatae, Fragilariatae. *Proceedings of the Academy of Natural Sciences of Philadelphia* 78(Suppl.): 1–228.

Ehrenberg [C.G.] (1839). Über jetzt wirklich noch zahlreich lebende Thier-Arten der Kreideformation der Erde. *Bericht über die zur Bekanntmachung geeigneten Verhandlungen der Königl. Preuß. Akademie der Wissenschaften zu Berlin* 1839: 152–159.

Ehrenberg, C.G. (1844). Einige vorläufige Resultate seiner Untersuchungen der ihm von der Südpolreise des Captain Ross, so wie von den Herren Schayer und Darwin zugekommenen Materialien über das Verhalten des kleinsten Lebens in den Oceanen und den grössten bisher zugänglichen Tiefen des Weltmeeres. *Bericht über die zur Bekanntmachung Geeigneten Verhandlungen Der Königl. Preuss. Akademie Der Wissenschaften zu Berlin* 1844: 182–207.

Linnaeus, C. (1758). *Systema naturae* per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Tomus I. Editio decima, reformata. Editio decima revisa. Vol. 1 pp. [i-iv], [1]-823. Holmiae [Stockholm]: impensis direct. Laurentii Salvii.

Turland, N.J., Wiersema, J.H., Barrie, F.R., Greuter, W., Hawksworth, D.L., Herendeen, P.S., Knapp, S., Kusber, W.-H., Li, D.-Z., Marhold, K., May, T.W., McNeill, J., Monro, A.M., Prado, J., Price, M.J. & Smith, G.F., editors (2018). *International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code)* adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017. *Regnum Vegetabile*, Vol. 159. pp. [i]-xxxviii, 1–253. Glashütten: Koeltz Botanical Books.