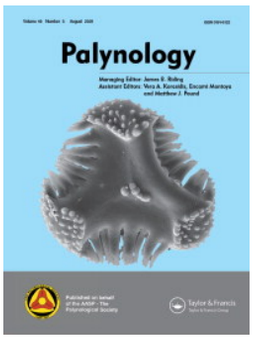

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New name for the Jurassic dinoflagellate cyst species *Gonyaulacysta longicornis* (Deflandre 1938) Riding et al. 2022

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ABSTRACT

One of the taxonomic actions in a recent review of the Jurassic dinoflagellate cyst genus *Gonyaulacysta* was the elevation of the subspecies *Gonyaulacysta jurassica* subsp. *longicornis* Deflandre 1938 to species rank, as *Gonyaulacysta longicornis* (Deflandre 1938) Riding et al. 2022. In doing so, the authors of this review inadvertently created an illegitimate junior homonym of *Gonyaulacysta longicornis* (Downie 1956) Sarjeant 1969. To remedy this situation, we propose the new name *Gonyaulacysta nasuta* as a substitute for *Gonyaulacysta longicornis* (Deflandre 1938) Riding et al. 2022, thus preserving the integrity of this important index taxon for the late Callovian to middle Oxfordian (Middle–Late Jurassic) of the Northern Hemisphere.

KEYWORDS

Dinoflagellate cysts; *Gonyaulacysta*; Jurassic; nomenclature; taxonomy

1. Introduction

Riding et al. (2022) reviewed the Middle–Late Jurassic dinoflagellate cyst genus *Gonyaulacysta* Deflandre 1964, emending its diagnosis to include only species with an epicyst longer than the hypocyst, along with other critical characteristics that retain a concept morphologically close to the type of the genus, *Gonyaulacysta jurassica* (Deflandre 1938) Norris and Sarjeant 1965. Despite the distinctive characteristics of *Gonyaulacysta jurassica*, the genus *Gonyaulacysta* had become a 'dumping ground' over the years for many broadly 'gonyaulacoid' species with apical horns and precingular archaeopyles that did not clearly (at least to their respective authors) fit in other genera. The review and revision by Riding et al. (2022) therefore involved the transferring out of many species that did not fit with their newly constrained concept of *Gonyaulacysta*. A second issue with the taxonomy of *Gonyaulacysta* was the use in some species, especially *Gonyaulacysta jurassica*, of infraspecific ranks. This usage seemed somewhat random, inconsistent and awkward – and moreover tended to obscure the biostratigraphical value of the taxa involved. Hence, as part of their review, Riding et al. (2022) eliminated all infraspecific taxa from *Gonyaulacysta*, mainly through their elevation to species rank.

One of the infraspecific taxa that Riding et al. (2022) raised to specific rank was originally designated as *Gonyaulax jurassica* var. *longicornis* by Deflandre (1938), but has been variously designated as *Gonyaulacysta jurassica* var. *longicornis*, *Gonyaulacysta jurassica* subsp. *longicornis* and *Gonyaulacysta jurassica* subsp. *adecta* var. *longicornis* (see Riding et al. 2022, 25). In raising this taxon to specific rank as *Gonyaulacysta longicornis* (Deflandre 1938) Riding et al. 2022, the authors did not recognise that they were creating an illegitimate homonym of *Gonyaulacysta longicornis* (Downie 1956) Sarjeant 1969. Even though Downie's taxon has been transferred to *Cribroperidinium*?, and the epithet of Downie's name postdates the epithet of Deflandre's name, names have no formal status outside their own rank (Article 11.2 in Turland et al. 2025): *Gonyaulacysta longicornis* (Deflandre 1938) was raised to specific rank in 2022, whereas *Gonyaulacysta longicornis* (Downie 1956) was originally designated as a species in 1957.

Sarjeant (1982) considered *Gonyaulacysta jurassica* subsp. *brevis* Johnson and Hills 1973 to be a taxonomic junior synonym of *Gonyaulax* (now *Gonyaulacysta*) *jurassica* subsp. *adecta* var. *longicornis*

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(Deflandre 1938). Hence, it would be possible to raise the former name to specific rank to encompass the species illegimately named *Gonyaulacysta longicornis* (Deflandre 1938). However, the holotype of *Gonyaulacysta jurassica* subsp. *brevis* Johnson and Hills 1973 is illustrated by a very small photograph that barely shows the distinctive features of this form – indeed, the illustration is insufficient to be confident about the synonymy. Hence, we prefer to propose a new name, *Gonyaulacysta nasuta*, for the illegitimate designation *Gonyaulacysta longicornis* (Deflandre 1938) Riding et al. 2022.

2. Systematic palaeontology

Division: DINOFLAGELLATA (Bütschli 1885) Fensome et al. 1993
Subdivision: DINOKARYOTA Fensome et al. 1993
Class: DINOPHYCEAE Pascher 1914
Subclass: PERIDINIPHYCIDEA Fensome et al. 1993
Order: GONYAULACALES Taylor 1980
Suborder: GONYAULACICEAE (autonym)
Family: GONYAULACACEAE Lindemann 1928
Subfamily: LEPTODINIOIDEAE Fensome et al. 1993

Genus: *Gonyaulacysta* Deflandre 1938 emend. Riding et al. 2022

Gonyaulacysta nasuta nom. nov. subst. pro. *longicornis* (Deflandre 1938, 171, pl. 6, fig. 6) Riding et al. 2022, p. 25

Selected synonymy.

1938 *Gonyaulax jurassica* var. *longicornis* Deflandre: p. 171, pl. 6, 6.
1965 *Gonyaulacysta jurassica* var. *longicornis* Deflandre; Downie and Sarjeant: p. 115.
1973 *Gonyaulacysta jurassica* var. *brevis* Johnson and Hills: p. 206, pl. 1, 10, 14.
1973 *Gonyaulacysta jurassica* subsp. *longicornis* Deflandre; Lentin and Williams: p. 62.
1975 *Gonyaulacysta jurassica* subsp. brevis (Johnson and Hills) Lentin and Williams: p. 2151.
1982 *Gonyaulacysta jurassica* subsp. *adecta* var. *longicornis* (Deflandre) emend. Sarjeant 1982: p. 31.
2022 *Gonyaulacysta longicornis* (Deflandre) Riding et al., 25; illegitimate junior homonym of *Gonyaulacysta* (now *Cribroperidinium*) *longicornis* (Downie 1956) Sarjeant 1969.

Derivation of name. From the Latin *nāsūtus*, meaning long-nosed, in reference to the long apical horn of this species.

Comments. All relevant details pertaining to this species, such as the original and emended descriptions, the emended diagnosis, the holotype, morphological comparisons, dimensions, and geographical and stratigraphical distributions, were given by Riding et al. (2022, 25, 27).

3. Conclusions

The new name *Gonyaulacysta nasuta* is herein substituted for *Gonyaulacysta longicornis* (Deflandre 1938) Riding et al. 2022. This action was required because Riding et al. (2022) unintentionally created an illegitimate junior homonym of *Gonyaulacysta longicornis* (Downie 1956) Sarjeant 1969. *Gonyaulacysta nasuta* is a relatively cold-water taxon, and is a reliable marker for the late Callovian to middle Oxfordian (Middle–Late Jurassic) of Laurasia (Riding et al. 2022, 27). This species is especially common in the early and middle Oxfordian, and two particularly well-preserved specimens from the middle Oxfordian of north-west Scotland were illustrated by Riding and Thomas (1997, figs 5d, 5h).

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Disclosure statement

No potential conflicts of interest were reported by the authors.

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