
The correct orthography for the epithet of *Gonyaulax digitale*, a common dinoflagellate in marine waters

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Charles Henri Georges Pouchet (1833–1894), generally known as Georges Pouchet, was a French naturalist who worked mainly on the anatomy of fish and marine mammals at the Muséum national d'histoire naturelle Paris, where he was appointed chair of the Department of Comparative Anatomy (1879–1894) (Beauregard 1895). Later, Pouchet became co-director of La Station de Biologie Marine de Concarneau (1885–1894), where he undertook significant taxonomic work on dinoflagellates (e.g., Pouchet 1882, 1883, 1885, 1887). In 1883, he described a new species of dinoflagellate from a water sample collected off Concarneau (Brittany, France) to which he gave the name *Protoperidinium digitale* C.H.G.Pouchet (Pouchet 1883: 433).

Lemmermann (1899: 369) considered Pouchet's species to be a *Peridinium* Ehrenberg (1830: 38) and renamed it as *P. digitale* (C.H.G.Pouchet) Lemmermann). In his study of the genus *Gonyaulax*, Diesing, 1866, Kofoid (1911) observed specimens that resembled Pouchet's species in material mostly from around the Faroe Islands. After a detailed study of the tabulation, Kofoid (1911: 214), renamed Pouchet's species as *Gonyaulax digitale* (C.H.G.Pouchet:) Kofoid, and the species has been considered as belonging to the genus *Gonyaulax* ever since.

Most authors have followed Kofoid's nomenclature and orthography as *Gonyaulax digitale*. However, some others have employed the spelling '*digitalis*', without providing an explanation for the orthographic change. We have traced back the first use of the epithet '*digitalis*' to Wall & Dale (1968: 269, pl. 1, figs. 4–5). This orthography quickly spread to the later literature, particularly in papers dealing with dinoflagellate cysts (see Supplement).

Pouchet (1883:433) used the epithet '*digitale*' for this species because of its 'shell' (referring to its theca) covered by excavations, reminding him of those on a thimble (a small hard pitted cup worn for protection on the finger that pushes the needle through in sewing, '*dé à coudre*' in French) ('*Nous donnons ce nom à une espèce dont le test est couvert d'excavations rappelant celles d'un dé à coudre ...*'). Unfortunately, however, Pouchet did not mention whether the Latin epithet '*digitale*' originated from the adjective *digitalis*, -e, [of, or belonging to the finger or toe] or from the noun *digitale*, -is (neuter). Since the gender of *Protoperidinium* Bergh 1882 is neuter, the ending of the epithet is unhelpful as it can indicate either the adjectival form in agreement with the gender of the genus, or the noun *digitale* used in apposition, in which case the epithet should retain its own gender and termination irrespective of the generic name (ICN Melbourne Code, Art. 23.5, McNeill *et al.* 2012).

All of the Latin dictionaries that we consulted indicate that the adjective '*digitalis*' either refers to a measure: '*measuring a finger's breadth*' (Glare 1968) or in French '*de la grosseur du doigt*'

(Quicherat & Daveluy 1857, Gaffiot 1934); or refers to ‘of or belonging to the finger’ (Lewis & Short 1879). By contrast, the noun *digitale*, *-is*, is a synonym of *digitabulum*, *-i*, (n.), referring to an object covering the finger like a finger stall, a thimble or a glove (Quicherat & Daveluy 1857, Gaffiot 1934).

The first version of the French-to-Latin dictionary by Quicherat & Chatelain (1891) was published in 1858, and it is possible that this was used by Pouchet. It provides, some years before Pouchet’s (1883) protologue for *Protoperidinium digitale*, the translation of ‘*dé à coudre*’, the very same words used by Pouchet to describe the ornamentation looking like a thimble as *digital* or *digitale*, *-is*. From this it is obvious that the epithet chosen by Pouchet was the noun to refer to this cell looking like a thimble and not the adjective since it is doubtful that he did not mean to describe this cell as measuring a finger's breadth (an overestimation of more or less 250 times its size) or belonging to a finger (nonsensical).

As *Peridinium* is neuter, Lemmermann (1899) used a neuter ending for his epithet. As *Gonyaulax* is feminine, Kofoid (1911: 214) correctly used the combination *Gonyaulax digitale* as a noun in apposition. ICN Art. 60.1 (Melbourne Code; McNeill *et al.* 2012) requires that ‘the original spelling of a name or epithet is to be retained’, with the exception of typographical and orthographical corrections. Since Pouchet did not, in our opinion, make an orthographical or typographical error, we consider *Gonyaulax digitale* the correct orthography for this dinoflagellate.

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