Nomenclatural changes in the genus *Chroodactylon* Hansgirg (*Stylonemataceae, Stylonematophyceae*)

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Anton Hansgirg (1854–1917) described the genus *Chroodactylon* Hansgirg (1885: 14) primarily for *Chroodactylon wolleanum* Hansgirg (1885: 14) but he also included *Chroodactylon ramosum* (Thwaites) Hansgirg (1885: 19). The genus was typified with *Chroodactylon wolleanum* Hansgirg by Drew & Ross (1965: 95, "Type Species"). It is not clear if Drew & Ross intended a lectotypification since they do not mention the other species included by Hansgirg, but it is accepted as a lectotypification by Silva ("2") in *Index Nominum Genericorum* (Farr & Zijlstra 1996–2025).

At present, there are varying opinions on the number of species that should be recognized in this genus. Some treatments (e.g. Eloranta & al. 2011, Sheath & Vis, 2015, Vis & Necchi 2021) recognize only a single species, *C. ornatum* (C.Agardh) Basson (1979: 67). Here, we consider that the genus *Chroodactylon* includes three valid taxa: *C. ornatum*, *C. depressum* (G.Martens) V.Krishnamurthy, Balakrishnan & Desikachary (2009: 252) and the type, *C. wolleanum* as currently included in AlgaeBase (Guiry & Guiry 2025). We agree with others (e.g. Burova & al. 2024) that some presently subordinate taxa require clarification of their nomenclatural status and taxonomic position, particularly "*C. filamentosum*" (Kant & Gupta) Ganesan, J.A.West & Necchi, *nom. inval*. and *C. halophilum* (Hansgirg) Moshkova.

"*Chroodactylon filamentosum*" was originally proposed by Ganesan & al. (2018: 7), supposedly as a new combination for "*Asterocytis filamentosa"* Kant & Gupta (1998: 184, pl. 84: fig. 2). This latter designation is invalid as a Latin description or diagnosis was not provided (ICN Art. 44.1, Turland & al. 2018) and a type was not designated (Art. 40.1). A new combination is typified by the type of the basionym, and thus, a name based on an invalid name is also invalid (Art. 7.3), unless separately validated, and consequently "*Chroodactylon filamentosum*" is also invalid. We have not been able to locate original Kant & Gupta's material: personal contacts with Indian phycologists did not result in the discovery of such type material. Here, we propose validation of Ganesan, J.A.West & Necchi's name by designating as type the illustration provided by Kant & Gupta (1998: pl. 84: fig. 2), in accordance with ICN Art. 9.3, although a future epitypification with topotype material will be necessary to clarify the taxonomic status of this entity.

Chroodactylon filamentosum Ganesan, J.A.West & Necchi ex Levanets & Burova, *sp. nov*.
Designations: "*Chroodactylon filamentosum*" Ganesan, J.A.West & Necchi, *nom. inval*. (Ganesan & al. 2018: 7); "*Asterocytis filamentosa*" Kant & Gupta, *nom. inval*. (Kant & Gupta 1998: 184, pl. 84: fig. 2, as '*Asterocystis*').
Description: Thallus branched, tufted, embedded in mucilage, cells rectangular, arranged in single row, chloroplast excentric, stellate, pyrenoids one or two in each chloroplast (Kant & Gupta 1998: 184, from key to the species of the *Asterocy[s]tis* genus).
Holotype: [icon!] Kant & Gupta 1998: pl. 84: fig. 2 (reproduced here as Fig. 1).
Type locality: Ladakh, India.
Registration (of species name): http://phycobank.org/105374

Note: The specimens from Ladakh were collected from nine different sites (Kant & Gupta 1998: map on p. 22; habitats description on pp. 26–27), and it is not clearly indicated from which of these nine sites, their "new species" was collected.

Moshkova & Frolova (1983) published an account of the red and bown algae of Ukrainian SSR as vol. 12 in a series of freshwater algal identification manuals, where the designation "*Chroodactylon halophilum"*(Hansgirg) Moshkova was proposed. However, this proposal was invalid as a full and direct citation of place of publication of the basionym was not provided (Art. 41.5).

Chroodactylon halophilum (Hansgirg) Moshkova *ex* Levanets & Burova, *sp. nov*.
Basionym: *Allogonium halophilum* Hansgirg *Hedwigia* 26(1): 22, no fig., 1887.
Synonym: *Asterocytis halophila* (Hansgirg) Forti (in De Toni) *Sylloge Algarum* 5: 691, 1907.
Description. Pseudofilaments are irregularly branched or simple (unbranched), short (up to 90 µm long), uniseriate, attached to substratum. Cells are depressed-spherical, spherical or slightly ellipsoid, cell width 5–11 µm. Cells are connected each other or loosely located, surrounded by mucilaginous transparent sheath which tied near transverse cell walls and adheres more or less tightly to the lateral sides of cells (Figs 2, 3). Olive-yellowish central stellate chloroplast with central, about 3 µm thick, finely grained pyrenoid (Hansgirg 1887, Moshkova 1970, Moshkova & Frolova 1983).
Lectotype **(designated here)**: [icon!] Hansgirg 1893: fig. 43c (reproduced here as Fig. 2).
Type locality: Bohemia: Aužitz near Kralup [Kralupy nad Vltavou, now in Czechia].
Registration (of species name): http://phycobank.org/105376
Registration (of lectotype): http://phycobank.org/105377
Note: According to Hansgirg (1887) cells are generally 9–10 µm wide, about 6–8 µm long, colourless or encrusted with iron oxide hydrates. Moshkova (1970) noted specimens with cell widths of 8.0–9.7 µm, and Moshkova & Frolova (1983) noted pseudofilaments of 12–18 µm wide, and Hansgirg (1887) also give filament widths of 12–18 µm, but 20 µm wide including the mucilaginous sheaths.
Drouet (1957: 42) in his publication on the herbarium of Anton Hansgirg noted the presence of *Allogonium halophilum* type material in the Herbarium of the Naturhistorisches Museum in Vienna (**W**) but this material cannot currently be found (Tanja Schuster pers. comm.).

The species was found for the first time outside of Czechia by Moshkova (1970) in the Ukraine (Odesa region, Podilsk [former Troitske] district, Tylihul River near Troitsk Village, epiphytic on shells of the mollusc *Limnaea stagnalis* L., on 19 May 1954) as *Asterocytis halophila* Hansgirg. We located Moshkova's sample – No. 4742(78) - deposited in Algotheca, Herbarium of the M.G. Kholodny Institute of Botany of the National Academy of Sciences of Ukraine (**KW**) (Fig. 4). Unfortunately, no *C. halophilum* filaments could be found in the sample. This makes impossible to treat this sample as a type. Moshkova & Frolova (1983: 50) speculated that *Chroodactylon halophilum* might be a developmental stage of *Chroodactylon ramosum* (Thwaites) Hansgirg, currently regarded as a synonym of *Chroodactylon ornatum*. Therefore, this taxon requires an additional detailed examination of the morphology (Borysova & Sadogurska 2024) as well as comparative DNA sequence data as is needed for all species in the genus (Vis & Necchi 2021).

Transfer of the following infraspecific taxon name is also required.
Chroodactylon halophilum var. ***stagnale*** (Hansgirg) Levanets & Burova, *comb. nov.*
Basionym: *Allogonium halophilum* var. *stagnale* Hansgirg *Prodromus der Algenflora von Böhmen* 2: 132, no fig. (as 'var. β *stagnale*'), 1893.
Synonym: *Asterocytis halophila* var. *stagnalis* (Hansgirg) Forti in De Toni *Sylloge Algarum* 5: 691, 1907.

Type locality: Bohemia: Čelakowic [now Czech Republic, Čelákovice]; Břeh near Přelouč, on *Cladophora* spp. and other algae in a freshwater pond on the large Elbe island.
Registration: http://phycobank.org/105378

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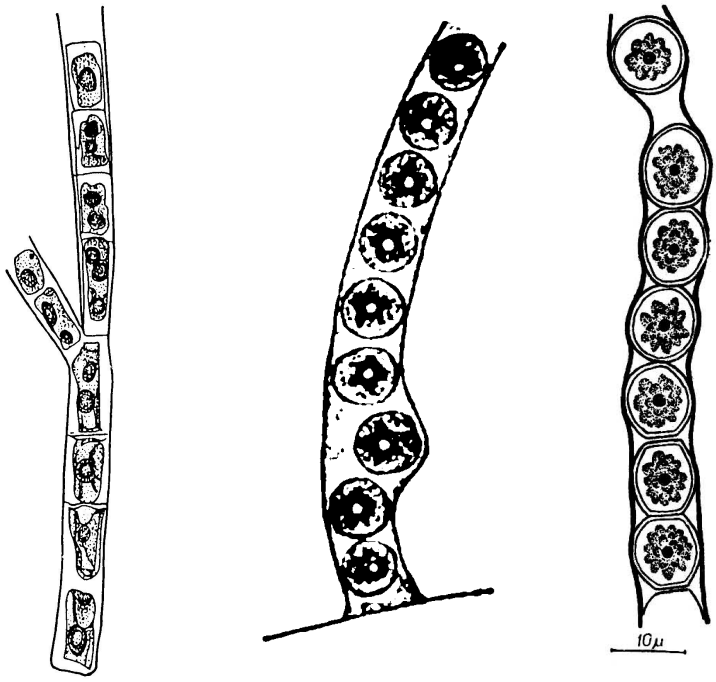

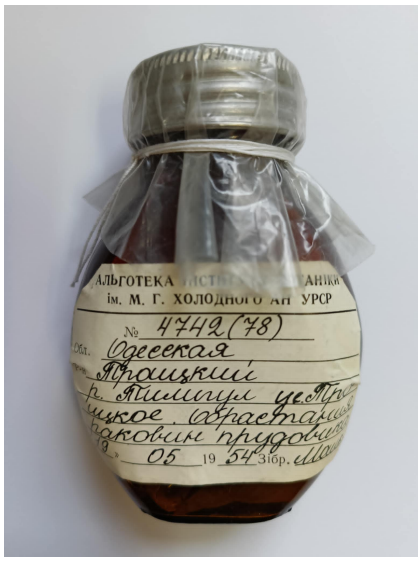

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Fig. 1. *Chroodactylon filamentosum* Ganesan, J.A.West & Necchi ex Levanets ex Levanets & Burova, *sp. nov*. Holotype: [icon!] from Kant & Gupta 1998: pl. 84: fig. 2.

Fig. 2. *Chroodactylon halophilum* (Hansgirg) Moshkova ex Levanets & Burova, *sp. nov*. Lectotype (**designated here**): [icon!] from Hansgirg 1893: fig. 43c.

Fig. 3. *Asterocytis halophila* (Hansgirg) Forti (from Moshkova 1970).

Fig. 4. Photo of sample No. 4742(78) deposited in Algotheca, Herbarium of the M.G. Kholodny Institute of Botany of the National Academy of Sciences of Ukraine (**KW**).