

Is the congenericity between *Heterojanczewskia* and *Laurencia* (*Rhodomelaceae*, *Florideophyceae*) sustainable?

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Preuss & al. (2024), using molecular studies on the type species of the genus *Janczewskia* Solms-Laubach (*J. verruciformis* Solms-Laubach), together with three other species (*J. hawaiiiana* Apt, *J. morimotoi* Tokida and *J. tasmanica* Falkenberg), confirmed what was reported in previous studies (e.g. Kurihara & al. 2010) that the genus *Janczewskia* is polyphyletic. From this study, Preuss & al. (2024) also concluded that the above four species evolved independently within the genus *Laurencia* J.V.Lamouroux and that the genus *Janczewskia* should not be maintained. Accordingly, they proposed the transfer of *J. verruciformis* to the genus *Laurencia* as *Laurencia verruciformis* (Solms-Laubach) M.Preuss, Díaz-Tapia, Verbruggen & Zuccarello, and combined under the genus *Laurencia* all other species of *Janczewskia*. However, they stated that there was a possibility that some of them might eventually be transferred from *Laurencia*. Since, as reported by Nam (2022a), *J. verruciformis*, *J. morimotoi* Tokida and *J. tasmanica* Falkenberg show the typical morpho-reproductive characters of *Laurencia* (viz, four pericentral cells per axial cell, spermatangia of the trichoblast type and tetrasporangia derived from pericentral cells) and that from molecular studies (Kurihara & al. (2010: figs 2-4, S1; Preuss & al. 2024: fig. 2) *J. hawaiiiana* falls within the clade of *Laurencia sensu stricto* such a possibility does not exist for these four species. However, for *J. meridionalis* M.T.Martin & Pocock, *J. ramiformis* C.F.Chang & B.M.Xia, *J. solmsii* Setchell & Guernsey and *J. teysmannii* Weber Bosse published information (Setchell, 1914; Weber-van Bosse, 1923; Chang & Xia, 1978; Apt, 1987) does not show with certainty the morpho-reproductive characters of *Laurencia*. As reported by Nam (2022a), *Janczewskia gardneri* Setchell & Guernsey, *J. lappacea* Setchell and *J. moriformis* Setchell, show the typical morpho-reproductive characters of *Osmundea* Stackhouse (viz, axial cells with two pericentral cells; male structure of filament type; tetrasporangia derived from epidermal cells). The occurrence of the above characters led Nam (2022a) to propose the elevation of *Janczewskia* sect. *Heterojanczewskia* Setchell to generic level [as *Heterojanczewskia* (Setchell) K.W.Nam] and to transfer to that genus such species as *Heterojanczewskia gardneri* (Setchell & Guernsey) K.W.Nam, *H. lappacea* (Setchell) Nam and *H. moriformis* (Setchell) K.W.Nam, respectively. Incidentally, it should also be noted that in Nam (2022a) the generic name was not validly published, thus rendering invalid also the new specific combinations. These were later validated by Nam (2022b).

Preuss & al. (2024) underestimated the importance of the morpho-reproductive characters which distinguish *Laurencia* from *Osmundea* as employed by Nam (2022a) for the above three species, and in absence of any molecular data, combined them under the genus *Laurencia* as *Laurencia janczewskii* M.Preuss, Díaz-Tapia, Verbruggen & Zuccarello, *Laurencia lappacea* (Setchell) M.Preuss, Díaz-Tapia, Verbruggen & Zuccarello and *Laurencia parasitica* M.Preuss, Díaz-Tapia, Verbruggen & Zuccarello. And thus they considered *Heterojanczewskia* to be congeneric with *Laurencia*. Based on these considerations, in our opinion, the inclusion of *Heterojanczewskia* in *Laurencia* is not currently sustainable and, pending additional molecular data, we propose to maintain the distinction between the two, and we recommend that *Laurencia janczewskii*, *L. lappacea* and *L. parasitica* continue to be treated as synonyms of *Heterojanczewskia gardneri*, *H. lappacea* and *H. moriformis*, respectively.



- Apt, K.E. (1987). A new species of *Janczewskia* (Rhodomelaceae, Rhodophyta) from the Hawaiian Islands. *Phycologia* 26(3): 328–333.
- Chang, C.F. & Xia, B.M. (1978). Studies on the parasitic red algae of China. *Studia Marina Sinica* 14: 119–127, 2 pls. [in Chinese, English, Latin]
- Kurihara, A., Abe, T., Tani, M. & Sherwood, A.R. (2010). Molecular phylogeny and evolution of red algal parasites: a case study of *Benzaitenia*, *Janczewskia*, and *Ululania* (Ceramiales). *Journal of Phycology* 46(3): 580–590.
- Nam, K.W. (2022a). *Heterojanczewskia* stat. nov. with an emendation of generic delineation of *Janczewskia* (Rhodomelaceae, Rhodophyta). *Korean Journal of Environmental Biology* 40(3): 301–306, 2 fig., 1 table.
- Nam, K.W. (2022b). Validation of the generic name *Heterojanczewskia* (Rhodomelaceae, Rhodophyta). *Notulae Algarum* 262: 1–2.
- Preuss, M., Díaz-Tapia, P., Verbruggen, H. & Zuccarello, G.C. (2023). Gene-rich plastid genomes of two parasitic red algal species, *Laurencia australis* and *L. verruciformis* (Rhodomelaceae, Ceramiales), and a taxonomic revision of *Janczewskia*. *Journal of Phycology* 59(5): 950–962.
- Setchell, W.A. (1914). Parasitic Florideae, I. *University of California Publications in Botany* 6(1): 1–34, 6 pls.
- Weber-van Bosse, A. (1923). *Liste des algues du Siboga. III. Rhodophyceae. Seconde Partie. Ceramiales*. Vol. 59c pp. 311–392, figs 110–142, pls IX, X. Leiden: E.J. Brill.