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Disentangling a complex genus: systematics, biogeography and bioactivity of the genus *Phyllanthus* L. and related genera of tribe *Phyllanthae* (*Phyllanthaceae*)

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Propositions

Accompanying the PhD thesis

Disentangling a complex genus

Phylogeny, classification, historical biogeography, and bioactivity screening of the genus *Phyllanthus* L. and related genera of tribe Phyllanthae (Phyllanthaceae)

1. *Phyllanthus* should be classified as a separate genus from *Breynia*, *Glochidion* and *Synostemon*, as merging all genera would create a large heterogeneous group without distinctive synapomorphies (this thesis).
2. The identification of convergent evolution as seen in tribe Phyllanthae in pollen and habit, can only be possible when other lines of evidence such as phylogenetics are examined (this thesis).
3. The unequal species diversity between (sub)genera in tribe Phyllanthae cannot fully be explained through a co-evolution with their respective pollinator, other factors such as dispersal vectors or scent diversity may have affected speciation (this thesis).
4. The wide distribution of early diverging lineages of tribe Phyllanthae indicates the possibility of a boreotropical dispersal pathway, which needs to be substantiated by better sampling (this thesis).
5. Resolving paraphyletic taxa is a matter that takes into account history, systematics and society, but an easy way out is never obvious and all options should be explored.
6. Speciation and diversification are not solely dependent on one specific character or ecological variable.
7. Combining phylogenetics and screenings for bioactive molecules could lead to the discovery of plants interesting for phytomining or metabolomics.
8. Areas with specific or extreme conditions often require specialized adaptation and harbor a hidden biodiversity, which makes them necessary targets for conservation.
9. The seemingly unshowy features of *Phyllanthus* flowers hide a wonderful, microscopic cornucopia of morphological forms, typical per species, that may seem daunting at first, but is spectacular in focus.
10. The network between botanical gardens facilitates a wonderful system of exchanges on plants (both information and material) and should not be hindered by bureaucracy or politics.
11. The future of botanic gardens will be and must be marked by collaborative efforts to give shape to their two most important functions: to serve scientific botany, and to educate the people. (Amended from Kalkman, C. (1990) Introduction. In: Veendorp, H. & Baas Becking, L.G.M. Hortus academicus Lugduno-Batavus, 1587-1937, reprinted edition.)
12. Science is not a buzzword.

Leiden, 6 December 2022

Roderick Bouman