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Commentary on *Psilocybe cyanescens*

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Psilocybe cyanescens Wakef. is a potently psychoactive synanthrope increasingly found in parks and flowerbeds in North American and European cities [1-3]. It is spreading by mulch usage, garden waste and outdoor cultivations of private consumers. Dennis and Wakefield [4] described the holotype from a botanical garden in London. After decades of globalization, the question is standing to reason, where this saprobic fungal alien initially came from.

Although a species delimitation to the European *P. serbica* [5] meanwhile is accepted among mycologists, *P. cyanescens´* relation to the North American *P. azurescens* [6] and *P. allenii* [7], as well as the Australian *P. subaeruginosa* [8], is still unclear. They more or less distinguish in morphology and distribution, but show a very close molecular phylogeny. Furthermore, *P. cyanescens*, *P. azurescens* and *P. allenii* are known to mate by plasmogamy. The taxonomical discussion requires more international studies with comprehensive strain collections.

P. cyanescens from England, Germany and the Pacific Northwest of the United States are characterized by the same, merely four mating types in a tetrapolar incompatibility system (Giessler, unpublished). Basidiomycetes usually have more mating types, to promote outbreeding, expecially between farer related populations. The lack of mating types may be used as an argument for a recent, anthropogenously promoted spreading, because it indicates a small gene pool due to a missing allopatric differentiation. *P. cyanescens* obviously represents a genetic bottleneck, but where is the bottle´s belly?

Maybe *P. subaeruginosa* colonies were the origin of *P. cyanescens*, *P. azurescens* and *P. allenii*. This species varies between the characteristics of the other three. It often resembles *P. cyanescens*, but has a higher number of mating types [9,10]. Simple mating experiments of *P. cyanescens*, *P. azurescens* and *P. allenii* with the Australian relative, accompanied by fructification experiments considering the ability to produce fertile offspring, would answer a lot of questions. An export of *P. subaeruginosa* to America and Europe, for example, by the shipping of wood or exotic plants, in the early 20th century is well imaginable.

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