Critical evaluation of Marketa Chlebická's thesis "Taxonomy of species of the genus Lachnum s.l. in Central Europe"

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In the course of more and more molecular research, morphological studies on the Helotiales are highly appreciated. Despite about 150 years of taxonomic work, our knowledge about species delimitation and identity of types is still rather incomplete. So Marketa Chlebická's papers are very detailed and helpful, and improve our taxonomic knowledge in the family Lachnaceae.

While Marketa's former studies were predominantly performed on herbarium specimens, her paper on Trichopeziza, which is still under work, was done with the aim to study as much specimens as possible in the fresh living state. Herbarium studies imply the loss of important characters like, for example, the loss of vacuolar guttules in paraphyses and hairs. The two very different methods, vital and herbarium taxonomy, concern also the evaluation of maturity. For example, questions like: "are differences in the number of spore septa true characters, or only developmental stages within a single species?" can only be answered on the basis of living material.

Marketa's study looks very carefully done, and the good drawings to the most part show the important details. I only wonder the frequent lack of information on spore guttulation in her Lachnum papers, which is not lost in herbarium material but well visible when mounting in KOH.

The three papers in preparation (V-VII) are understood as draft articles which still need major revision. In paper V (Trichopeziza) microscopical drawings or photos are urgently lacking, concerning both lectotypes and fresh material. Therefore, name changes and new typifications should only be done with a detailed illustration, in order to permit later workers to build on these results.

As far as I can judge, the literature data are very rich and complete. The discussions are detailed, sometimes a bit difficult to understand. Only in the draft papers they are partly incomplete and unfinished. I think the species concept in the Trichopeziza paper (V) is still somewhat premature to be published, but the article has gained more progress in the meantime. It is presently difficult to understand in the lack of a key or character table.

Summarizing, I recommend Marketa's thesis as suitable to achieve the PhD degree.

Proposed questions:

1. In your study on Lachnum you use the colour of the dry apothecia, which is the result of some oxidation process of the guttules inside the living paraphyses, as characteristic at the a species level. As I understand you think that this colour change from originally white apothecia is a rather stable feature. Do you think that it is independent of the process of drying (slowly or rapidly, with or without applying heat)? Did you make experiments?

2. In your study on Trichopeziza, some of your groups 1-6 show a variability in croziers, so that some collections are with, others without croziers. I also noted such variability in a few species, f.ex., in Proliferodiscus pulveraceus. However, croziers are generally used as a key

character for species or at least varieties. Have you been unable to find here any other features correlated with the croziers, so that you conclude that a single character is insufficient to separate between two taxa? Or do you estimate croziers less valuable than, e.g., colour?

3. In almost all of your studies on Lachnaceae (exception: Capitotricha and Trichopeziza nylanderi) I miss mention of the spore contents (oil drops, LBs), although these are stable in herbarium material, apart from their confluence. Particularly in Trichopeziza these drops are one of the most important characteristics, in my experience. You mention them for T. nylanderi but not for T. lizonii which is likewise well characterised by its multiguttulate spores against species like T. leucophaea and T. mollissima. As you use to mount in KOH you should easily have seen these striking oil drops, did you? I wonder especially because you refer to my two drawings of T. lizonii which both show this striking character.

4. You mention the xerotolerance of Capitotricha in your Capitotricha article. [Did you personally make such experience in the Lachnaceae, f.ex., concerning Lachnellula?] A very widespread custom is to collect discomycetes on the moist ground although a very huge amount of taxa prefers to grow on periodically dry branches, f.ex. Capitotricha bicolor. So this unfortunate custom results in overlooking many taxa and various ecological niches. Did you note differences in such preference within the studied taxa of Capitotricha (I remember to have found C. fagiseda on the moist ground whilst C. bicolor often on still-attched twigs)?

5. The frequent mixed ocurrence of xerointolerant and xerotolerant species in various groups of Helotiales rises the question which of the two character states is primary. Do you think it is possible to speculate on this concerning the Lachnaceae, based on your phylogenetic tree?

6. In your study on Trichopeziza you concentrated for the first time on fresh living specimens (41 out of 49) which you studied straight in water mounts, not in KOH, obviously according to my recommendations on the so-called vital taxonomy. In an earlier paper you mention the strong shrinkage of asci when KOH is added to living material. In most of your papers ascus measurements consistently refer to material in KOH, in order to have compatible data. Do the values in the Trichopeziza paper refer to living asci, and how do you compare them with data gained from herbarium specimens?

7. In your study on Trichopeziza you found abundant dense vacuolar guttules in the living paraphyses in almost every group and therefore concluded that they are of little value here. My experience is different: I found these guttules only in T. leucophaea and T. mollissima, while I never saw them in T. nylanderi, T. albotestacea, T. lizonii, and T. subsulphurea. Can you show me images of living paraphyses from species other than the first two showing these guttules?