

Successional changes in diatom ecological guilds and cell-size classes' composition during colonization in a lowland stream

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Colonisation processes in diatom assemblages were studied in an experiment using semi-artificial substrates in Tócsó-stream (a lowland stream) during 83 days. We focused on the changes in composition and abundance of diatom ecological guilds and cell-size classes. Changes in the relative abundance of low profile guild show their decisive role at the beginning of colonisation, and in the initiation of re-colonization processes. The abundance was high from the first hour, than remarkably decreased; finally there was a twofold increase after the 31st day. Changes in the relative abundance of the high profile and motile guild (20-40% and continuous increase to the 20th day, respectively, and remarkable decrease after the 31st day) reflected the changes in environmental circumstances (mainly the water temperature due to the variable spring weather). The relative abundance of small-sized taxa (S1, S2) decreased from 30% to 18% in the first three weeks, after that its relative abundance increased up to 35%. Relative abundance of large sized taxa (S5) was high at the beginning of the experiment, decreased in the first day, than increased to the 20th day, and drastically decreased to the end of the study period. The relative abundance of medium sized taxa (S3, S4) was high during the whole sampling period. These phenomena highlight the importance of mature biofilm in the colonization processes in shallow, lowland watercourses, and draw attention to late re-colonization processes. Taxa replacement appeared between some dominant large sized taxa (*Meridion circulare*, *Surirella brebissonii*, *Melosira varians*) during the experiment, which indicate the interactions between certain guilds. *Meridion circulare* (low profile guild) was present in high numbers at the first period of the colonisation (till the 20th day), but its relative abundance continuously decreased till the end of the experiment. *Melosira varians* (high profile guild) was relatively abundant till the 20th day, but after the 31st day its relative abundance decreased considerably, similarly to that of *Surirella brebissonii* (motile guild).

Our results highlighted the special features (changes in proportion of ecological guilds and cell size classes) of colonization processes of lowland streams due to the shallowness and semistatic character of these kinds of watercourses. These specialities should be taken into consideration during environmental status assessment.