

Diversity of non-calcified algae in Kalana Lagerstätte (Aeronian, Silurian)

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The Kalana *Lagerstätte* (Aeronian, Silurian) in Central Estonia has revealed a rich and diverse flora of non-calcified algae. It has been proposed that this flora encompasses at least ten morphological groups. To date, two new algal species have been identified in Kalana: *Kalania pusilla* Tinn, Mastik, Ainsaar et Meidla, 2015 and *Palaeocymopolia silurica* Mastik et Tinn, 2015. Additionally, the presence of *Leveilleites hartnageli* Foerste, 1923, previously described from the Late Ordovician of Laurentia, has been confirmed in Estonia.

Currently, a new study of the algal flora in Kalana has been initiated. This project aims to differentiate species within a broad morphological group. One of the morphotypes (sp. A) resembles the early ontogenetic stages of *Buthograptus* sp. with the form and arrangement of fronds on the central axis. However, size measurements, such as axis width and pinnules' width, differ by more than two times. Every whorl armed with only one branch, step in 45 degrees. The adult stage exhibits a bifurcating main axis in 3,5 cm from the caudal end. Branches are mainly rectilinear and rigid like in *Callithamnopsis fruticosa* and depart from the central axis at an angle of less than 70 degrees, making a slight 1 mm curl, replace under 15–30° angle to main axis, on early stage lie mainly parallel. On the matured branches, the end of the curl divides into two second-order lateral segments. No more clearly observed branching was discovered. The maximum value of thallus width is approximately 4 mm, and the length is 8.5 cm.

The length of the thallus of the second morphotype (sp. B) is 3 cm, the width 7 mm. The main axis is densely covered with at least 4 first-order lateral branches, which, at the 0.4 mm mark, diverge under an angle of 50 degrees and then they bifurcates two times on their length. On all specimens the main axis is crowned with 1 to 3 club-shaped structures. A few specimens show splitting into 3 terminal branches. The dense and strictly organised arrangement of branches around the whorls and assemblages on the top are main differences, which distinguish them from extant *Batophora* sp. or extinct *Chaetocladus* sp.