
Differential characteristics of mesophilous and xerophilous grasses trichomes in the south of Western Siberia

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Résumé

Paleoreconstruction using phytolith analysis in the south of Western Siberia encounters difficulties due to lack of species reference collections. This study investigates the characteristics of grass trichomes which may be used as reference for this area. Golyeva A.A. (2001) uses various types of silicified trichomes, such as 'forest' and 'meadow' grasses silicified trichomes, to interpret phytolith spectra from the temperate zone of Eurasia, especially from the European area of Russia. However, silicified trichome shape characteristics and differences are not detailed. Trichomes are formed not only in forest and meadow grasses but also in steppe grasses. Here we investigate whether any qualitative and quantitative characteristics can be used to differentiate trichomes from mesophilous and xerophilous grasses. Eleven species of grasses that form trichome phytoliths were studied: *Agrostis vinealis*, *A. gigantea*, *Calamagrostis epigeios*, *C. pseudophragmites*, *Setaria viridis*, *S. pumila*, *Stipa zaleskii*, *S. lessingiana*, *S. capillata*, *S. korshinskyi* and *S. pennata*. Eco-coenotic conditions of grasses were discussed. The following trichome characteristics were identified: trichomes proportion among other phytoliths, form (oval or trigonal), presence of prickle. Additionally, length, breadth and ratio of length and breadth were measured. These characteristics allow to partition the grasses into two groups: xerophytes and mesophytes. Mesophilous grasses are characterized by the occurrence of trichomes and prickles, a large representation of trichome triangle forms and a large proportion of trichomes. Length and breadth of trichomes also reflect the partition of grasses into two groups: xerophytes (*Stipa*) and mesophytes (*Agrostis*, *Calamagrostis*). The length of trichome is the criterion the more statistically significant. Mesophilous grasses produce longer trichomes. The identified silicified trichome characteristics can be used for paleoecological reconstructions. Golyeva A.A., 2001. Fitolity i ikh informatsionnaya rol v izuchenii prirodnykh i arkhologicheskikh obyektov. Elista, Syktyvkar (in Russian, with English Abstract).

Mots-Clés: phytoliths, trichomes, grasses, morphometry

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