The Quillwort Site

The quillwort site is near the village of Saleh at an elevation of ca. 1650m. In May 2000 we were able to locate approximately one hundred plants at the site. Mature megaspore plants were found only in an area of a few square meters that had been slightly ploughed. Heavy rain was evident later that summer. On the opposite side of the road where water is present, an estimated 250 plants were growing submerged among Phragmites and Juncus. These plants have much larger leaves and lack sporangia.

Which Quillwort Is It?

Isoetes olympica A. Braun

Isoetes olympica was described from near Bursa in Turkey (Carl v. Fritsch, 1866) with two more recent collections from the same vicinity -- (Max Mouterde 1933, V, 8/18/1976) and A. Byfield (personal communication). The only other known location is Jebel Druze.

Isoetes olympica was first collected at Jebel Druze in 1953 by one of the earliest botanical explorers of the area, Gunnar Samuelsson (Samuelsson 1938). His collection was distributed as Cives Novae, Ser. 2, 45, 6 (1938). Mouterde (1953) cites several locations for the quillwort at Jebel Druze in Flora of Turkey (Mouterde 1953, 1954). The opposite side of the road where water is present, an estimated 250 plants were growing submerged among Phragmites and Juncus. These plants have much larger leaves and lack sporangia.

Culture

Cultivation of quillwort is difficult, perhaps because they need a short period. Plants collected in May 2000 were placed in plastic containers and allowed to remain. Then they were placed in an refrigerator for one month. After removal from the refrigerator, they were returned to greenhouse temperature when leaves started to develop.

Future

The only quillwort (ISOETACEAE, Lycophtyta) in Syria is threatened with extinction. The Jebel Druze region, also known as Jebel Hauran, is the only location where the quillwort is known to exist. This region is threatened by human activity, including agriculture and grazing. The quillwort is also threatened by habitat loss due to the construction of dams and reservoirs. Conservation efforts are needed to protect this unique plant species.

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Molecular Studies

Sarah Hoot and Carl Taylor isolated DNA from the quillwort in their study of relationships within the genus. They used RFLP analysis and ITS sequencing. Their results show that the quillwort is closely related to the quillworts of the Mediterranean region.

Cytology

Dr. Rebecca Bray has obtained numerous counts of 22 chromosomes from quillwort plants.

Vegetative Morphology and Anatomy

The leaves resemble those of other quillworts. Peripheral leaf cells are distinctly tuberculate with a broad equatorial ridge and are ornamented with an extension of the equatorial ridge. The megaspores are echinate, with a distinct microspore ornamentation consisting of long rod-like protrusions. The microspores are echinate, with a distinct microspore ornamentation consisting of long rod-like protrusions. The vegetative morphology and anatomy of the quillwort are unique and distinct from other species.

References


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