

## Three species of flowering plants new for Greenland

Felix Gartmann

Institut für Systematische Botanik, Zollikerstr. 107, CH-8008 Zürich,  
Switzerland

ABSTRACT: *Galium verum*, *Silene vulgaris* and *Veronica officinalis* are recorded for the first time for Greenland. Descriptions of the habitat are given in which the plants were found. Possibilities of immigration of these species, especially from Iceland, are discussed.

### DESCRIPTION OF THE FINDING SITES

During a scientific journey in summer 1986 to the east coast of Greenland, plants were collected near the town of Angmagssalik. This site belongs to the largest icefree area on Greenlands south-east coast (65°37'N, 36°37'W). West of the town there is the beautiful valley called Blomsterdalen, the valley of flowers. It bears a vegetation of a rather alpine character.

Examining the collected ferns and seed plants, three new species for East Greenland could be identified: *Galium verum* L. (Herb. Gartmann 72(Z)), *Silene vulgaris* (Moench) Garcke (Herb. Gartmann 69(Z)), and *Veronica officinalis* L. (Herb. Gartmann 64(Z)). These three species found in Greenland can not be distinguished morphologically from central European individuals.

#### *GALIUM VERUM* L.

We found some individuals of this species only in one locality: on a south-east facing slope (inclination ca. 20%) at 80 m above sea level. The plants grow on sandy, dry soil together with *Salix callicarpaea*, *Empetrum nigrum* ssp. *hermaphroditum*, *Vaccinium uliginosum* ssp. *microphyllum*, *Festuca rubra*, *Luzula spicata*, *Carex bigelowii* and *Polygonum viviparum* as predominant species. The habitat is close to an often used footpath 1,5 km west of Angmagssalik.

*SILENE VULGARIS* (Moench) Garcke

This species was found along a footpath 150 m east from the locality mentioned above. The population grew on a south-east exposed slope of about 10% inclination at 70 m above sea level. The substratum is dry and sandy soil. Other dominant species on this habitat are *Carex bigelowii*, *Luzula spicata*, *Festuca rubra*, *Erigeron uniflorus* and *Hieracium alpinum*. Only one population with about six individuals was found.

*VERONICA OFFICINALIS* L.

We found one population of *Veronica officinalis* with few individuals at the basis of a retaining wall of a graveyard 500 m west of Angmagssalik in the lower part of Blomsterdalen (50 m above sea level). This species grows on a rather moist, peaty soil together with *Comarum palustre*, *Equisetum arvense*, *Eriophorum scheuchzeri* and *Sphagnum* sp.

## DISCUSSION

The Angmagssalik area and especially Blomsterdalen are floristically well known regions in Greenland (BÖCHER 1933; DANIELS 1982; DANIELS & DE MOLENAAR 1970; KRUISE 1906, 1912; DE MOLENAAR 1968; SEIDENFADEN 1933). Neither these authors nor HULTÉN & FRIES (1986) mentioned the three discussed species for Greenland. The most plausible way of an introduction of the three species is anthropochory from Iceland. In 1970 a hotel was opened at Angmagssalik and several airlines are organizing charter flights from Reykjavík, so every year some hundred European tourists visit Angmagssalik and the surroundings, including Blomsterdalen. One can only speculate about the way of transport of diaspores, but there seems to exist some chance for an introduction of seeds kept in earth particles on the sole of shoes. Both countries are popular among hikers, so it is plausible that tourists visiting Iceland will accidentally function as a vector for plants when proceeding to Greenland. However, according to OSTENFELD (1934) and LÖVE (1983) *Silene vulgaris* is rare even in Iceland. Therefore a direct introduction from Europe of one or all of the three species cannot be excluded, but one has to be aware of the very small number of tourists flying directly from Europe to Angmagssalik.

Immigration from America is not likely. The diaspores have first to pass the Labrador sea before reaching the west coast of Greenland, where none of these plants exist. The following 700 km distance over inland ice cap between the west coast and Angmagssalik will inhibit zoochory as well. Rare traffic connections between Angmagssalik and northern parts of Canada make immigration by means of man improbable. As there are no water currents running from Canada to East-Greenland hydrochory can be excluded. A colonization within Greenland turns up the question of where the sources are found. The Angmagssalik region has a comparatively mild climate, so one would rather expect the plants to find its first refugium here

and colonize other regions in Greenland afterwards and not vice versa.

It will be interesting to see how these populations of the three species further develop in Greenland. More investigation is needed to elucidate the question whether these immigrants are pure ephemerophytes or successful colonizers that will survive, develop and even speciate in future.

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