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Sommario/riassunto

The first taxonomic treatment of the smut fungi in Greenland is provided. A total of 43 species in 11 genera are treated and illustrated by photographs of sori, microphotographs of spores in LM and SEM, and distribution maps. Two species, *Anthracoidea pseudofetidae* and *Urocystis tothii*, are recorded as new from North America. Thirteen species, *Anthracoidea altera*, *A. capillaris*, *A. limosa*, *A. liroi*, *A. pseudofetidae*, *A. scirpoideae*, *A. turfosa*, *Microbotryum lagerheimii*, *M. stellariae*, *Schizonella elynae*, *Stegocintractia luzulae*, *Urocystis fischeri*, and *U. tothii*, are reported for the first time from Greenland. The most numerous distribution groups are the following: circumpolar–alpine and Arctic–alpine species – 14; circumboreal–polar species – 10; and circumpolar and Arctic species – 6. The most widely distributed smut fungi in Greenland are *Anthracoidea bigelowii*, *A. elynae*, *Microbotryum bistortarum*, and *M. vinosum*. Most species were found in the High Arctic zone (29 species), while from the Low Arctic zone and the Subarctic zone, 26 and 19 species were known, respectively. Ten species, *Anthracoidea bigelowii*, *A. capillaris*, *A. elynae*, *Microbotryum bistortarum*, *M. koenigiae*, *M. pustulatum*, *M. sileneseacaulis*, *M. vinosum*, *Schizonella elynae*, and *Urocystis sorosporioides*, were recorded from all three zones. Only plants belonging to six families, Cyperaceae, Poaceae, Juncaceae, Ranunculaceae, Caryophyllaceae, and Polygonaceae, out of a total of 55 in the flora of Greenland, hosted smut fungi. *Carex* was the genus with the highest number of host species (22). The total number of the host plants (45 species) was 8.5 % out of a total of 532 vascular plants in the flora of Greenland.
