

## Chemical composition of the reindeer summer and winter food

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*Abstract:* Semi-domesticated reindeer eat during the period of snow cover mainly lichen (*Cladina* spp.), which they must dig for in the snow. In the southern part of the Finnish reindeer herding area reindeer can also eat arboreal lichens (*Alectoria* and *Bryoria* spp.) and frozen *Deschampsia flexuosa* hay. During summer reindeer feed on over 350 species of various plants, mainly sedges (*Carex* spp.), cottonsedges (*Eriophorum* spp.), shrubs, numerous grass and herb species and leaves from trees. The chemical composition of reindeer food was studied during summer 1983 in 88 sampling areas in the reindeer herding area of Finland.

The nutritive value of growing tundra plants, sedges and grasses is very high and reindeer always select the highest quality forage available. The reindeer's summer food contains usually about 22% crude fibre and 15% crude protein in DM. The crude protein content varied in different areas and was 7.1 to 16.3% of DM in *D. flexuosa*, 8.5 to 18.2% in *Equisetum fluviatile*; 9.3 to 21.7% in *E. sylvaticum*; 8.9 to 14.7% in *Carex* spp.; 10.6 to 16.2% in *Epilobium angustifolium*; 9.4 to 15.2% in *Menyanthes trifoliata*; 10.3 to 25.5% in *Potentilla palustris*; 11.3 to 23.0% in leaves of *Betula pubescens*; 10.1 to 14.7% in *B. nana*; 15.2 to 19.3% in *B. tortuosa*; 9.3 to 20.2% in *Salix phylicifolia* and 6.6 to 14.9% in *S. lapponum*.

The crude protein content varied in different areas and was 2.4 to 4.0% of DM in *Cladina rangiferina*; 2.2 to 4.6% in *C. mitis*; 2.2 to 3.3%

in *C. stellaris*; 2.0 to 3.2 in *Cetraria nivalis* and 4.3 to 8.0% in *Stereocaulon* spp. The mean of crude fibre content was 38.8% of DM in *C. rangiferina*; 30.1% in *C. arbuscula*; 39.8% in *C. stellaris* and 6.4% in *Cetraria nivalis*. Lichens contained on average 1.4 to 3.3% of DM crude fat and 0.4 to 1.8% of DM sugar. Lichens contained few minerals or trace elements. When lichens are digested, negative balances of protein and minerals occur. However, lichens contain large amounts of easily digestible sugar (mainly lichenin and isolichenin), enabling the reindeer to get the energy they need quickly in winter.