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Poisoning of moose (*Alces alces)* with natural toxins in Norway

Silvio Uhlig

Norwegian Veterinary Institute, Norway

Abstract

At least three different plant sources regularly result in poisoning of free-ranging moose in Norway. These are the bog asphodel (*Narthecium ossifragum*) resulting in kidney damage (nephrotoxicity), ergots of the fungus *Claviceps purpurea* causing peripheral gangrene, and yew (*Taxus*spp.) inducing acute circulatory collapse.

Cases of lethal toxic nephrosis have been diagnosed in free-ranging moose in Norway since the 1990's. The lesions were reproduced experimentally following intraruminal dosing with an aqueous extract from bog asphodel.Radiotelemetric studies of moose have revealed that individual animals may eat large amounts of bog asphodel. These data strongly indicate that the moose may be poisoned by water-soluble furanones from bog asphodel.

Presumptive gangrenous ergotism has been observed in Norwegian moose for at least 15 years. The ergots are commonly seen in the seed heads of large-grown grasses eaten by the moose during early autumn, constituting the likely source of intoxication. While affected moose found during October and November showed distal limb gangrene, animals found in December or later presented more advanced lesions with loss of the distal part of the limbs or open lesions close to sloughing.

Dead moose have occasionally been found in the vicinity of housing estates with gardens containing different yew hybrids. Post mortem examination typically revealed general congestion and bilateral heart dilation pointing to acute heart failure, as well as the presence ofyew in the rumen. Chemical analyses of heart and liver samples revealed the presence of taxine alkaloids and support that these animals died of acute yew poisoning.

Biography

Silvio Uhlig has studied chemistry in Germany, the UK and Norway where he graduated from the University of Oslo. He has completed his PhD in mycotoxin chemistry from the Norwegian School of Veterinary Science in 2005 and has since been working as a scientist at the Norwegian Veterinary Institute. He is primarily working with organic and analytical chemistry of fungi and plants and has published more than 30 papers on identification, occurrence, biological effects and biotransformation of natural toxins.