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## Lichens from the Vadstena Monastery churchyard – the burial place of Erik Acharius

INGVAR KÄRNEFELT, ULF ARUP, LARS ARVIDSSON, MIKA BENDIKSBY, JAN INGAR BÅTVIK, TASSILO FEUERER, DAVID J. GALLOWAY, REIDAR HAUGAN, JON T. KLEPSLAND, MARTIN KUKWA, ULF LARSSON, ANNINA LAUNIS, ANA M. MILLANES, MARIA PRIETO, JUHA PYKÄLÄ, MARK R. D. SEAWARD, ARNE THELL, EINAR TIMDAL, ANDREI TSURYKAU, STAFFAN WALL and MARTIN WESTBERG

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A list of 120 taxa observed at the Vadstena Monastery churchyard includes some rare species and a few lichenicolous fungi. *Lecanora semipallida* is reported from the province Östergötland [Ostrogothia] for the first time.

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## Introduction

Erik Acharius, *The father of lichenology*, was born on 10 October 1757 in the small town of Gävle on the Baltic coast of central Sweden, where he spent his childhood. After introductory schools in Gävle, he arrived in Uppsala in the autumn of 1773 for academic studies in natural history at the university. Linnaeus soon recognized Acharius's brightness, and in 1776 he was allowed to defend his academic dissertation *de Planta Aphyteja* (Kärnefelt & Fröden 2008, Kärnefelt & Thell 2007, Vitikainen 1976).

Acharius spent the next four years in Stockholm working as an illustrator and in the meantime extending his knowledge in natural sciences and medicine. He practised in local hospitals for his future profession as a medical doctor. Well prepared, he travelled to Lund in 1782, presenting his thesis for the degree Doctor of Medicine. In 1789, Acharius was appointed as a provincial doctor in the picturesque little town of Vadstena at the eastern shore of Lake Vättern, where he would spend the rest of his life (Fig. 1).

Presumably Acharius became interested in lichens when he had settled in Vadstena, encouraged by his long time friend Olof Swartz, the Director of the Botanical Garden in Stockholm. In his first major publication on lichens, *Lichenographiae sueciae prodromus*, the known lichens were arranged into three groups, based on morphology: namely *Lichenes crustacei*, *Lichenes foliacei* and *Lichenes caulescentes* (Acharius 1799). A few years later in his *Methodus qua omnes detectos lichenum*, the lichens were presented under new rules with the species arranged under new generic names (Acharius 1803): 23 genera and 536 species were systematically organized according to orders based on structure, and also, in the case of genera, the form and position of apothecia; subgenera were based on the structure of the thallus. His *Lichenographia universalis* (Acharius 1810) basically followed the system of 1803, as did the famous *Synopsis methodica lichenum*, which treated 43 genera and 906 species (Acharius 1814, Krempelhuber 1867).

The species concept in Acharius' work was based on a macroscopically taxonomic one, i.e. he observed the differences between seemingly similar species without the aid of a microscope, and used these characters to distinguish species. He was not particularly interested in anatomical characters, although he did publish several plates with anatomical structures in his *Lichenographia universalis* (Acharius 1810).

Acharius never travelled extensively. He made excursions in the surroundings of Uppsala, Stockholm, Lund and Landskrona, in connection with his earlier studies. After settling in Vadstena

in 1789 he was more or less tied to this region and travelled solely in the province of Östergötland. Therefore, while working on his larger books, Acharius had to rely on material sent to him, collected by others, particularly for *Lichenographia universalis*, which had a worldwide scope. Acharius was criticized for his arrangement of lichens according to morphological characters, such as the position and form of apothecia. New ideas and alternative systems were presented, by, for instance, Massalongo (1852) who was among the first lichenologists to use spore form in taxonomic evaluation. Acharius's legacy is mainly in his way of organizing the lichens under new generic entities, thereby abandoning the single genus *Lichen* of the Linnaean era. His three major works, *Methodus lichenum*, *Lichenographia universalis* and *Synopsis methodica lichenum*, stand therefore as cornerstones in the early development of lichenology.



**Figure 1.** The annex to the old hospital where Erik Acharius worked and lived with his family 1789–1810, today Vadstena Klosterhotell. Photo: Ingvar Kärnefelt, 2013.

Acharius continued to work restlessly on his lichens using all spare time from his normal duties with patients in the hospital. His *Synopsis methodica lichenum* was printed in Lund in 1814, and it was of course a great disappointment that his Alma Mater turned down an offer to buy his herbarium. During the winter of 1819 he suffered from minor strokes, which caused him problems with hearing and balance, but he persisted with his hard work during spring and summer. While sitting in his garden in the hot sun over many days working enthusiastically on a lichen collection he had received from Zaragoza in northeastern Spain, he suffered a massive stroke on 13 August 1819, and died on the next day, aged 61. He had become a well-known naturalist abroad, but was more famous in his home town. It is said that the large church bell was tolling for one and three-quarter hours soon after he died.

The last resting place of Erik Acharius was in the old churchyard (Fig. 2) located just east of the well-known monastery church erected at the end of the 14th century. The site is very beautiful,

being dominated by an open environment with lots of space in between the main gravestones, many of which are very old, their substrata ranging from limestone to acid in composition. The dominating trees, mostly rather old, are *Ulmus glabra*, *Fraxinus excelsior*, *Aesculus hippocastanum*, *Sorbus aucuparia* and *Betula pubescens*. The locality is situated at 58°27'04"N, 14°53'33"E. Unfortunately there is no record in the Vadstena archives of the location of Acharius's grave. A stone was searched for, but not found, among the gravestones in the northern side of the churchyard. Presumably the site of his grave has been replaced by others, not an uncommon practice, especially when relatives caring for graves moved elsewhere. During the Nordic Lichen Society symposium in Vadstena, we found it appropriate to commemorate Acharius on the anniversary of his death on 14 August 2013 by registering a list of the lichen species found in his burial place.



**Figure 2.** The resting place of Erik Acharius, the Monastery Churchyard in Vadstena. Photo: Ingvar Kärnefelt, 2013.

### The list

The list of 120 taxa includes some rare species and a few lichenicolous fungi, as well as common and widely spread European species (Table 1). In terms of the rather limited time we had for the investigation, this number of species is most satisfactory and comparable with the average numbers recorded by the British Lichen Society's Churchyard Project. All lichens collected during the symposium are listed by Thell *et al.* (2014): 43 are reported as new to the province Östergötland [Ostrogothia], ten of which were found in the churchyard, including three new to Sweden: *Thelidium cf. rimosulum* Ceyn.-Gield., *Verrucaria ochrostoma* and *V. polystictoides*. Although known earlier from several Swedish provinces (Fröberg 1997, Pykälä 2007), *Lecanora semipallida* H. Magn., new to Östergötland, was not collected, but observed within the churchyard on a calcareous stone.

**Table 1.** Lichens and lichenicolous fungi observed at the the Vadstena Monastery churchyard.

<i>Acarospora fuscata</i>	<i>Lecanora expallens</i>
<i>Acarospora glaucocarpa</i>	<i>Lecanora persimilis</i>
<i>Alyxoria varia</i>	<i>Lecanora polytropa</i>
<i>Amandinea punctata</i>	<i>Lecanora semipallida.</i>
<i>Anaptychia ciliaris</i>	<i>Lecanora varia</i>
<i>Aspicilia cinerea</i>	<i>Lecidella stigmatea</i>
<i>Aspicilia contorta</i> ssp. <i>contorta</i>	<i>Lepraria finkii</i>
<i>Aspicilia contorta</i> ssp. <i>hoffmanniana</i>	<i>Lepraria incana</i>
<i>Aspicilia verrucigera</i>	<i>Lepraria vouauxii</i>
<i>Athallia cerinella</i>	* <i>Lichenochora weillii</i>
<i>Athallia holocarpa</i>	<i>Melanelixia glabratula</i>
<i>Athallia pyracea</i>	<i>Melanelixia fuliginosa</i>
<i>Bacidia rubella</i>	<i>Melanelixia subargentifera</i>
<i>Bryoria fuscescens</i>	<i>Melanelixia subaurifera</i>
<i>Calicium adpersum</i>	<i>Melanohalea exasperatula</i>
<i>Calicium salicinum</i>	<i>Ochrolechia subviridis</i>
<i>Calicium viride</i>	<i>Ochrolechia turneri</i>
<i>Calogaya arnoldii</i>	<i>Parmelia sulcata</i>
<i>Calogaya decipiens</i>	<i>Pertusaria albescens</i>
<i>Calogaya pusilla</i>	<i>Pertusaria coccodes</i>
<i>Caloplaca cerina</i>	<i>Phaeophyscia nigricans</i>
<i>Caloplaca chlorina</i>	<i>Phaeophyscia orbicularis</i>
<i>Caloplaca obscurella</i>	<i>Phlyctis argena</i>
<i>Candelaria pacifica</i>	<i>Physcia adscendens</i>
<i>Candelariella efflorescens</i>	<i>Physcia aipolia</i>
<i>Candelariella vitellina.</i>	<i>Physcia caesia</i>
<i>Candelariella xanthostigma</i>	<i>Physcia dubia</i>
<i>Chaenotheca ferruginea</i>	<i>Physcia stellaris</i>
<i>Chaenotheca phaeocephala</i>	<i>Physcia tenella</i>
<i>Chaenotheca trichialis</i>	<i>Physconia distorta</i>
<i>Chrysothrix candelaris</i>	<i>Physconia enteroxantha</i>
<i>Cladonia chlorophaea</i>	<i>Physconia grisea</i>
<i>Diplotomma alboatrum</i>	<i>Physconia perisidiosa</i>
<i>Evernia prunastri</i>	<i>Piccolia ochrophora</i>
<i>Flavoplaca citrina</i>	<i>Placynthium nigrum</i>
<i>Flavoplaca dichroa</i>	<i>Pleurosticta acetabulum</i>
<i>Flavoplaca flavocitrina</i>	<i>Polycauliona candelaria</i>
<i>Gyalecta fagicola</i>	<i>Polycauliona phlogina</i>
<i>Hypocenomyce scalaris</i>	<i>Polycauliona polycarpa.</i>
<i>Hypogymnia physodes</i>	<i>Porpidia tuberculosa</i>
<i>Hypogymnia tubulosa</i>	<i>Protoparmeliopsis muralis</i>
* <i>Illosporopsis christiansenii</i>	<i>Pseudevernia furfuracea</i>
<i>Imshaugia aleurites</i>	<i>Psilolechia lucida</i>
<i>Lathagrium fuscovirens</i>	<i>Ramalina farinacea</i>
<i>Lecania cyrtella</i>	<i>Ramalina fastigiata</i>
<i>Lecania cyrtellina</i>	<i>Ramalina fraxinea</i>
<i>Lecania naegelii</i>	<i>Rhizocarpon geographicum</i>
<i>Lecanora albescens</i>	<i>Rinodina sophodes</i>
<i>Lecanora campestris</i>	<i>Rinodina</i> cf. <i>teichophila</i>
<i>Lecanora carpinea</i>	<i>Rusavskia elegans</i>
<i>Lecanora chlorotera</i>	* <i>Syzygospora physciacearum</i>
<i>Lecanora crenulata</i>	<i>Thelidium</i> cf. <i>rimulosum</i>



*Tremella ramalinae*  
*Trichonectria rubefaciens*  
*Tuckermannopsis chlorofyl*  
*Usnea hirta*  
*Verrucaria* aff. *Dolosa*  
*Verrucaria memnonia*  
*Verrucaria muralis*  
*Verrucaria nigrescens*

*Verrucaria ochrostoma*  
*Verrucaria polystictoides*  
*Verrucaria viridula*  
*Vouauxiella lichenicola*  
*Xanthomendoza fulva*  
*Xanthoparmelia conspersa*  
*Xanthoparmelia verruculifera*  
*Xanthoria parietina*

\* = lichenicolous fungus

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