



## LICHENS OF DROHICZYN ON THE BUG RIVER (PODLASIE, EASTERN POLAND)

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**ABSTRACT.** The paper presents a list of 86 species found in Drohiczyn (personal data and from literature). Of these, 14 species are considered to be threatened in Poland. The lichens occur on all substrate types: soil surface, decaying wood, bark of all trees and shrubs species, boulders, concrete, foundation, mortar, plaster and bryophytes. Valuable components of the lichen biota belong mostly to the group of threatened species not only on the regional, but also on the national scale. There are: *Caloplaca crenulatella*, *Melanohalea exasperata*, *Physcia tribacia*, *Pleurosticta acetabulum*, *Ramalina fastigiata*, *Xanthoria fallax* and others.

**KEY WORDS:** lichens, distribution, Drohiczyn, eastern Poland

### INTRODUCTION

The lichenobiota of Drohiczyn has not been compiled in a comprehensive study to date. Only CIEŚLIŃSKI (2003 a), having investigated lichens of north-eastern Poland in the 1980s, reports several dozen species from the cemetery and the Castle Hill (Góra Zamkowa).

Investigations on lichens in Poland have been carried out in a large number of big and small towns, frequently of a health-resort character, situated in the lowlands as well as the mountains. On the territory of Poland lichen biota has been compiled for big cities, such as Lublin (RYDZAK 1953), Radom (CIEŚLIŃSKI 1974), Warszawa (ZIMNY and KUCIŃSKA 1974), Kielce (TOBOROWICZ 1976), Kraków (KISZKA 1977), Słupsk (ŚPIEWAKOWSKI and IZYDOREK 1981), Gdańsk, Sopot, Gdynia (FAŁTYNOWICZ et al. 1991), Rzeszów (PUSTELNIAK 1991), Przemyśl (KISZKA 1999), Olsztyn (KUBIAK 2005), Białystok (MATWIEJUK 2007). However, data concerning small towns populated by up to a few thousand inhabitants are not numerous, e.g. for Muszyna, Wiśla (RYDZAK 1956 a), Wołczyn (RYDZAK 1956 b), Białowieża (RYDZAK 1957), Duszniki Zdrój, Polanica Zdrój (RYDZAK 1959), Limanowa (JAGIEŁŁO 1983), Drezdenko (LIPNICKI 1984), Ciechanowiec (MATWIEJUK and KOLANKO 2007).

The aim of the study was to present flora documentation illustrating biodiversity of lichen biota in the area of Drohiczyn, taking into consideration the habitat conditions of species.

The investigations in the area of Drohiczyn were carried out in the years 2007-2008, on 29 research stands (Fig. 1). The alphabetical list of lichen species has been compiled. For each taxon we have specified the type of substratum it can be found on and the numbers of stands. Several dozen lichen species from the Castle Hill (stand 1) and cemetery (stand 2) have been reported by

CIEŚLIŃSKI (2003 a). The species confirmed by our own studies on that stand have been marked (served also by CIEŚLIŃSKI 2003 a). The species which have not been identified in the course of our own studies have been marked – served by CIEŚLIŃSKI (2003 a). The species have been named according to SANTESSON et al. (2004) and genus *Melanelia* according to BLANCO et al. (2004).

The lichen material has been deposited at the Herbarium of the Institute of Biology, University of Białystok.

### STUDY AREA

Drohiczyn is an old coronation town (one of the four in Poland, after Gniezno and before Cracow and Warsaw). The beginnings of organised settlement here date back to the 6th century. At the end of the 10th century the town was built playing an important role on the trade route running through it. In 1253 halicko-włodzimierski prince Daniel Romanowicz, the grandson of Bolesław III Krzywousty, crowned himself king of Ruś in Drohiczyn. In 1498 Drohiczyn was granted a town charter from prince Aleksander Jagiellończyk, the son of Kazimierz Jagiellończyk. In the years 1520-1795 Drohiczyn was the capital of the Podlaskie Province (DOBROŃSKI 2004, DOBROŃSKI and IZYDORCZYK 1980). The preserved monuments within the town include: Castle Hill – the early Middle Ages settlement, Franciscan church (17th-18th centuries) along with the monastery complex, the 18th century Benedictine church and convent, the 19th century St. Nicholas the Miracle Worker orthodox church and combat bunkers dating from 1940-1941 – the Molotow line (ARTYMIUK 2003).



FIG. 1. Distribution of lichens in Drohiczyn

Drohiczyn is a town located in eastern Poland, in the southern part of the Podlaskie Province ( $52^{\circ}24'N$  and  $22^{\circ}39'E$ ). It is the seat of municipal-country district authorities. It lies on the Drohiczyn Plateau (*Wysoczyzna Drohiczyńska*), in the southern part of the Północnopodlaska Lowland (*Nizina Północnopodlaska*), on the Bug River (KONDACKI 1994). Trunk road No. 62 Sieciatycze-Włocławek runs through the town. Formed during Middle Poland glaciation, the Północnopodlaska Lowland depicts old glacial landscape. Its main formations include the Bug valley and the postglacial plateau (Drohiczyn Plateau). The surface of the plateau is a plain of a hilly and rolling character. End moraine hills add variety to the plain. Towards the Bug valley the plateau descends with high, steep slopes cut through by deep erosive resections. The beauty of the Drohiczyn landscape can be easily admired from the plateau edges. The location of Drohiczyn in the eastern part of the country makes it possible for the polar-continental air masses to influence the climatic conditions. The total annual precipitation amounts to 500–600 mm. The hottest month is July, the coldest – January.

## RESULTS

On the territory of Drohiczyn there have been recorded 86 lichen species of 33 genera. The most abundant numbers of species represented here are those of genera *Lecanora* (12), *Cladonia* (10), *Caloplaca* (8), *Physcia* (7), *Xanthoria* (5) and *Ramalina* (4).

Lichens occur on all substrata likely to be colonized – on the bark of deciduous and coniferous trees and shrubs, wooden constructions, soil, stones, concrete, mortar, plaster and bryophytes.

Lichens are represented by all morphological forms. In the biota of the investigated area, the most dominant lichens are the ones which form different types of crustose thalli. They make up 51% of the overall number of the species. They can be found in shaded and moist places. Amongst the crustose lichens there is a significant number of pioneer species colonizing anthropogenic rock substrata, smooth tree bark and freshly-exposed soil. The second largest group consists of foliose lichens (27%). Lichens with fruticose thalli are the less numerous group comprising 19% of the overall number of biota. The participation of lichens from other morphological groups is insignificant and amounts to around 1%.

**Epiphytes.** The bark of trees (13 species) constitutes a substratum for numerous lichens. Out of 86 lichen species recorded in the area under study, 43 grew on tree bark including 36 obligatory epiphytes. Roadside trees dominate in Drohiczyn, free-standing trees prevail in agricultural landscape. The richest lichenbiota has been recorded on the bark of deciduous trees – *Acer platanoides* (30 species), *Tilia cordata* and *Populus tremula* (such as 15), *Fraxinus excelsior* (14). The epiphytic biota of the maple is of greater interest. Rare taxa have been identified on its bark, such as *Caloplaca cerinella*, *Pleurosticta acetabulum*, *Ramalina farinacea*, *R. fastigiata*, *R. pollinaria* and *Xanthoria candelaria*. Noteworthy are also lichens recorded on the bark of poplar, such as *Physcia tribacia* (the only stand in north-east Poland), *Melanohalea exasperata* and *Xanthoria fallax*.

On most roadside trees, high participation in lichenbiota is exhibited by nitrophilous macrolichens of genera *Physcia* (*P. adscendens*, *P. dubia*, *P. stellaris*, *P. tenuella*), *Physconia* (*P. enteroxantha*, *P. grisea*), *Ramalina*

(*R. farinacea*, *R. fraxinea*) and *Xanthoria* (*X. candelaria*, *X. parietina*, *X. polycarpa*).

The largest amount of stands and the highest coverage coefficients are attained by species which colonize not only tree bark but other types of substrata as well. These species also comprise the most frequently encountered group in the lichenbiota of Drohiczyn: *Phaeophyscia orbicularis*, *Physcia adscendens*, *Xanthoria parietina*.

The rare species worth mentioning here include *Caloplaca cerinella* (stand 1), *Melanohalea exasperata* (stand 1), *Physcia aipolia* (stand 1), *P. tribacia* (stand 1), *Pleurosticta acetabulum* (stand 3), *Ramalina fastigiata* (stand 3).

The distribution of epiphytic lichens on the territory of Drohiczyn is uneven, which is connected with the fact that many streets and much wasteland are completely deprived of trees.

**Epiphytes.** The second largest habitat group – 32 species, comprises rock lichens, of which 27 are exclusive epiphytes. They colonize both natural and anthropogenic substrata. Stones can be found in the open area, agricultural landscape, as well as within the town and built-up areas (walls, underpinnings and gravestones). Obligatory species include, among others *Acarospora fuscata*, *Diplotomma alboatrum*, *Lecanora polytropa*, *Porpidia crustulata*, *Trapelia coarctata*. Rich lichenbiota occurs also on artificial substrata with properties resembling those of rocks, such as concrete, mortar and bricks. These become colonized by calciphilous species and also by species tolerant towards the presence of calcium carbonate, such as *Caloplaca citrina*, *C. decipiens*, *C. saxicola*, *Lecanora albescens*, *L. dispersa* and *Xanthoria parietina*. They are accompanied by numerous nitrophilous species of family *Physciaceae*.

Worth drawing attention to are stand 1 (Castle Hill) and stand 2 (cemetery) where rare species have been recorded on old crumbling concrete walls, such as *Aspicilia contorta*, *Caloplaca coronata*, *C. crenulatella*, *Phaeophyscia sciastra*, *Verrucaria procopii*.

**Epigeits.** Soil is colonized by 15 lichen species of four genera (*Cetraria*, *Cladonia*, *Placynthiella*, *Trapeliopsis*). The dominant ones are terricolous cup-mosses (*Cladonia* – 10 species). Exclusive epigeits include 11 species. Terricolous lichens in the investigated area can be encountered outside urban settlements. The richest lichenbiota has been identified on grass growing over sand in the neighbourhood of the municipal cemetery (stand 2).

**Epixyloous lichens** are represented only by six species. On the territory of Drohiczyn lichens of dead and rotting wood favour mainly man-made timber constructions (fences, poles, crosses and farm outbuildings). The exclusive species are *Thelomma ocellatum* and *Trapeliopsis flexuosa*.

Among the 86 lichen taxa found in Drohiczyn, 66 were registered by Cieśliński 20 years ago (CIEŚLIŃSKI 2003 a). Among those, 57 species have been identified on the investigated area (stand 1 and 2) as well as on new stands, whereas nine species which rarely occurred in the past have not been found. Twenty species are new for Drohiczyn. The interesting lichens are: *Hypogymnia tubulosa*, *Pleurosticta acetabulum*, *Ramalina farinacea*, *R. fastigiata*, *R. pollinaria*, *Xanthoria candelaria*.

#### Participation of vulnerable and protected lichens

Of the 86 lichen species identified in Drohiczyn and its environs, 14 species have been put on the Red list of extinct and vulnerable lichens of Poland (CIEŚLIŃSKI ET AL. 2006), including 1 species in the critically endangered category – CR (*Melanohalea exasperata*), in the three species in the endangered category – EN (*Pleurosticta acetabulum*, *Ramalina fastigiata*, *R. fraxinea*), five species in the vulnerable category – VU (*Cetraria islandica*, *Physcia tribacia*, *Ramalina farinacea*, *R. pollinaria*, *Xanthoria fallax*), four species in the category of near threatened – NT (*Cetraria ericetorum*, *Evernia prunastri*, *Hypogymnia tubulosa*, *Physcia aipolia*) and one species in the category least concern – LC (*Phaeophyscia sciastra*), as well as four species on the Red list of lichens vulnerable in north-eastern Poland (CIEŚLIŃSKI 2003 b), including two EN (*Melanohalea exasperata*, *Xanthoria fallax*), one – VU (*Cetraria ericetorum*) and one in the category data deficient – DD (*Physcia tribacia*).

The level of threat for lichens in north-eastern Poland, compared to other regions in lowland Poland is lower, which is reflected in a small number of vulnerable lichens in Drohiczyn placed on the local Red list (CIEŚLIŃSKI 2003 b) compared to the national Red list (CIEŚLIŃSKI ET AL. 2006). The most threatened ecological group in Drohiczyn are epiphytes.

Of all the 86 lichen species of Drohiczyn, 12 have been put under legal protection, eight of which are totally and four of which are partially protected.

#### Species index

- Acarospora fuscata* (Schrad.) Th.Fr. – stones; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 14
- Amandinea punctata* (Hoffm.) Coppins & Scheid. – bark of *Acer platanoides*, *Fraxinus excelsior*, *Salix alba*, *Tilia cordata*; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 3-5, 11
- Aspicilia calcarea* (L.) Körb. – concrete constructions; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 21
- Aspicilia contorta* (Hoffm.) Kremp. – old concrete; stand: 1 (served by CIEŚLIŃSKI 2003 a)
- Caloplaca cerinella* (Nyl.) Flagey – bark of *Acer platanoides*; stand: 1 (served by CIEŚLIŃSKI 2003 a)
- Caloplaca citrina* (Hoffm.) Th.Fr. – concrete constructions, stones, plaster; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 4, 6-9, 12, 14, 15, 18-20, 23
- Caloplaca coronata* (Kremb. ex Körb.) J. Steiner – concrete in open, sunny stand, in vane condition; stand: 2 (served by CIEŚLIŃSKI 2003 a) – the third stand in north-eastern Poland
- Caloplaca crenulatella* (Nyl.) H. Olivier – crumbling concrete of fencing; stand: 2 (served by CIEŚLIŃSKI 2003 a) – the second stand in north-eastern Poland
- Caloplaca decipiens* (Arnold) Blomb. & Forsell – concrete constructions, plaster; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 3-8, 10, 12, 15, 19, 21, 23-29
- Caloplaca erythrocarpa* (Pers.) Zwackh – concrete wall; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Caloplaca holocarpa* (Hoffm. ex Ach.) A.E. Wade – concrete constructions; stands: 1 (served also by

- CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 20, 23
- Caloplaca saxicola* (Hoffm.) Nordin – concrete constructions, plaster; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 3-5, 13, 15, 18-21, 24-26, 28, 29
- Candelaria concolor* (Dicks.) Stein – bark of *Tilia cordata*, *Acer platanoides*; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 4
- Candelariella aurella* (Hoffm.) Zahlbr. – concrete constructions; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 3, 5, 10, 14, 21, 23
- Candelariella vitellina* (Hoffm.) Müll. Arg. – concrete constructions, stones; stands: 2 (served also by CIEŚLIŃSKI 2003 a), 5, 14
- Candelariella xanthostigma* (Ach.) Lettau – bark of *Fraxinus excelsior*, *Quercus robur*, *Tilia cordata*; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 3, 8, 14, 17
- Cetraria aculeata* (Schreb.) Fr. – soil; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Cetraria ericetorum* Opiz ssp. *ericetorum* – soil; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Cetraria islandica* (L.) Ach. – soil; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Cladonia cariosa* (Ach.) Spreng. – soil; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Cladonia chlorophaea* (Flörke ex Sommerf.) Spreng. – soil; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Cladonia coniocraea* (Flörke) Spreng., nom. cons. prop. – soil, bark of *Betula pendula*; stands: 2, 8, 11
- Cladonia fimbriata* (L.) Fr. – soil, bark of *Betula pendula*; stands: 2, 8, 11
- Cladonia foliacea* (Huds.) Willd. – soil; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Cladonia furcata* (Huds.) Schrad. (ssp. *furcata*) – soil; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Cladonia glauca* Flörke – soil; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Cladonia macilenta* Hoffm. – soil; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Cladonia rangiformis* Hoffm. – soil; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Cladonia subulata* (L.) Weber ex F.H. Wigg. – soil; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Diplotomma alboatrum* (Hoffm.) Flot. – stones in wall; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Evernia prunastri* (L.) Ach. – bark of *Acer platanoides*, *Tilia cordata*; stands: 1 (served also by Cieśliński 2003 a), 14, 18
- Hypocenomyce scalaris* (Ach.) M. Choisy – bark of *Betula pendula*, *Quercus robur*; stands: 2 (served also by CIEŚLIŃSKI 2003 a), 8, 11
- Hypogymnia physodes* (L.) Nyl. – bark of *Acer platanoides*, *Betula pendula*, *Fraxinus excelsior*, *Quercus robur*, *Tilia cordata*; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 3, 8, 11, 14, 18
- Hypogymnia tubulosa* (Schaer.) Hav. – bark of *Acer platanoides*; stand: 14
- Imshaugia aleurites* (Ach.) S.L.F. Meyer – wooden fences, bark of *Populus tremula*; stands: 2 (served also by CIEŚLIŃSKI 2003 a), 19
- Lecania cyrtella* (Ach.) Th. Fr. – bark of *Populus alba*; stand: 22
- Lecanora albescens* (Hoffm.) Branth & Rostr. – concrete constructions; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 3, 4, 5, 8-10, 12, 15, 19, 21, 24-29
- Lecanora argentata* (Ach.) Malme – bark of *Acer platanoides*; stand: 1 (served also by CIEŚLIŃSKI 2003 a)
- Lecanora carpinea* (L.) Vain. – bark of *Acer platanoides*; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 21
- Lecanora conizaeoides* Nyl. ex Cromb. – bark of *Picea abies*, *Robinia pseudacacia*; stands: 2, 9
- Lecanora dispersa* (Pers.) Sommerf. – concrete constructions; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2-5, 7-9, 15, 18, 19, 21, 23
- Lecanora expallens* Ach. – bark of *Acer platanoides*; stand: 3
- Lecanora hagenii* (Ach.) Ach. – bark of *Acer platanoides*; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a)
- Lecanora polytropa* (Ehrh. ex Hoffm.) Rabenh. – stones; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Lecanora pulicaris* (Pers.) Ach. – bark of *Acer platanoides*; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 21
- Lecanora rupicola* (L.) Zahlbr. – stones; stand: 14
- Lecanora saligna* (Schrad.) Zahlbr. – bark of *Acer platanoides*; stand: 1 (served also by CIEŚLIŃSKI 2003 a)
- Lecanora umbrina* (Ach.) A. Massal. – bark of deciduous trees; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a)
- Lecidea fuscoatra* (L.) Ach. – stones; stand: 14
- Lecidella elaeochroma* (Ach.) M. Choisy (sic) – bark of *Acer platanoides*; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 3
- Lecidella stigmata* (Ach.) Hertel & Leuckert – concrete constructions; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 4, 21
- Lepraria incana* sensu lato – bark of *Betula pendula*, *Juglans regia*, *Larix decidua*, *Picea abies*, bryophytes; stands: 2, 6, 8, 11
- Melanohalea exasperata* (De Not.) O. Blanco et al. – bark of *Populus tremula*; stand: 1 (served also by CIEŚLIŃSKI 2003 a)
- Parmelia sulcata* Taylor – bark of *Acer platanoides*, *Crataegus* sp., *Fraxinus excelsior*, *Populus tremula*, *Quercus robur*, *Sorbus aucuparia*, *Tilia cordata*; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 3-5, 8, 13, 14, 18, 21, 23
- Phaeophyscia nigricans* (Flörke) Moberg – bark of *Fraxinus excelsior*, concrete constructions; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 3, 5, 8, 15
- Phaeophyscia orbicularis* (Neck.) Moberg. – bark of tree and shrubs, concrete constructions, stones, wooden fences; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 3-8, 10, 11, 13-20, 22-29
- Phaeophyscia sciastra* (Ach.) Moberg. – concrete constructions: crumbling foundations; stand: 1 (served by CIEŚLIŃSKI 2003 a)
- Physcia adscendens* H. Olivier nom. cons. – bark of *Acer platanoides*, *Betula pendula*, *Fraxinus excelsior*, *Populus alba*, *Salix alba*, *Sorbus aucuparia*, *Tilia cordata*, concrete constructions, stones, wooden fences; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 3-5, 11, 14, 16-19, 21-23

- Physcia aipolia* (Ehrh. ex Humb.) Fürnr. – bark of *Populus tremula*; stand: 1 (served also by CIEŚLIŃSKI 2003 a)
- Physcia caesia* (Hoffm.) Fürnr. – stones; stand: 14
- Physcia dubia* (Hoffm.) Lettau – bark of *Acer platanoides*, *Betula pendula*, *Fraxinus excelsior*, *Populus tremula*, *Quercus robur*, *Tilia cordata*; stands: 1-4, 11, 13, 14, 17, 18, 23-26, 28, 29
- Physcia stellaris* (L.) Nyl. – bark of *Acer platanoides*, *Fraxinus excelsior*, *Populus alba*; stands: 3, 14, 21, 22
- Physcia tenella* (Scop.) DC. – bark of *Acer platanoides*, *Fraxinus excelsior*, *Populus tremula*, *Tilia cordata*, stones; stands: 2-4, 13, 14, 16, 21, 23
- Physcia tribacia* (Ach.) Nyl. – solitary trees of *Populus*; stand: 1 (served by CIEŚLIŃSKI 2003 a) – the only stand of this species in north-eastern Poland
- Physconia enteroxantha* (Nyl.) Poelt – bark of *Acer platanoides*, *Betula pendula*, *Fraxinus excelsior*, *Tilia cordata*; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 3, 14, 16, 17
- Physconia grisea* (Lam.) Poelt – bark of *Acer platanoides*, *Fraxinus excelsior*, *Populus alba*, *Tilia cordata*; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 3, 14, 22
- Placynthiella oligotropha* (J.R. Laundon) Coppins & P. James – soil; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Pleurosticta acetabulum* (Neck.) Elix & Lumbsch in Lumbsch, Kothe & Elix – bark of *Acer platanoides*; stand: 3
- Porpidia crustulata* (Ach.) Hertel & Knoph in Hertel – stones; stand: 14
- Protoparmeliopsis muralis* (Schreb.) M. Choisy – concrete constructions, stones; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 3, 6, 8, 9, 12, 14
- Ramalina farinacea* (L.) Ach. – bark of *Acer platanoides*; stand: 3
- Ramalina fastigiata* (Pers.) Ach. – bark of *Acer platanoides*; stand: 3
- Ramalina fraxinea* (L.) Ach. – bark of *Acer platanoides*; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 3
- Ramalina pollinaria* (Westr.) Ach. – bark of *Acer platanoides*; stand: 3
- Scoliciosporum chlorococcum* (Graewe ex Sten.) Vězda – bark of *Tilia cordata*; stand: 17
- Thelomma ocellatum* (Körb.) Tibell – decaying wood; stand: 2 (served by CIEŚLIŃSKI 2003 a)
- Trapelia coarctata* (Sm.) M. Choisy – stones; stand: 2 (served by CIEŚLIŃSKI 2003 a)
- Trapeliopsis flexuosa* (Fr.) Coppins & P. James – decaying wood; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Trapeliopsis granulosa* (Hoffm.) Lumbsch – soil; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Verrucaria nigrescens* Pers. – concrete constructions; stands: 2 (served also by CIEŚLIŃSKI 2003 a), 3, 15
- Verrucaria procopii* Servit – concrete constructions; stand: 2 (served also by CIEŚLIŃSKI 2003 a)
- Xanthoria candelaria* (L.) Th. Fr. – bark of *Acer platanoides*; stand: 3
- Xanthoria elegans* (Link) Th. Fr. – concrete constructions, mainly concrete posts; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 3, 8, 15, 19, 21
- Xanthoria fallax* (Hepp) Arnold – bark of *Populus tremula*; stand: 1 (served also by CIEŚLIŃSKI 2003 a)

- Xanthoria parietina* (L.) Th. Fr. – bark of trees and shrubs, concrete constructions, stones, wooden fences; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 2 (served also by CIEŚLIŃSKI 2003 a), 3-5, 7, 11, 13-29
- Xanthoria polycarpa* (Hoffm.) Th. Fr. ex Rieber – bark of trees and shrubs; stands: 1 (served also by CIEŚLIŃSKI 2003 a), 3-5, 7, 11, 13, 14, 17-19, 22, 23

#### Index of stands:

1. Góra Zamkowa – lonely trees at the nature park, shelter.
2. Cemetery – concrete wall, stairs, shelter, tombstones, trees, bryophytes, grass growing – soil.
3. Wielki Książę Witold Street – wayside trees.
4. Warszawska Street – trees.
5. Ciechanowiecka Street – trees, concrete constructions.
6. Wincenty Witos Street – foundation.
7. Słoneczna Street – concrete posts.
8. Adam Mickiewicz Street – concrete constructions: posts, walls and trees.
9. Kotlarska Street – concrete constructions, plaster, trees.
10. Franciszek Ksawery Dmochowski Street – concrete constructions, plaster.
11. Adam Mickiewicz Street – antique monastery group limited of Jesuit – trees.
12. Ks. Bp Zygmunt Łoziński Street – concrete constructions, foundation, walls, plaster.
13. Nieznanego Żołnierza Street – trees, concrete posts.
14. Place of Tadeusz Kościuszko, square – trees, stone founded by inhabitants in 900 years old city, 1066-1966.
15. Farna Street – concrete constructions.
16. Kościelna Street – trees.
17. Józef Ignacy Kraszewski Street – trees.
18. Hołdu Pruskiego Street – foundation.
19. Mikołaj Kopernik Street – trees, wooden fences, concrete constructions.
20. Rev. Józef Piłsudski Street – concrete constructions.
21. Zygmunt Szmit Street – trees, concrete constructions.
22. City Beach – trees.
23. Wojska Polskiego Street – trees, concrete posts.
24. Władysław Jagiełło Street – concrete constructions, foundation.
25. Sportowa Street – concrete constructions, foundation.
26. Świętojańska Street – concrete constructions, foundation.
27. Mikołaj Kopernik Street – concrete constructions, foundation.
28. Monterska Street – concrete constructions, foundation.
29. Daniel Romanowicz Street – concrete constructions, foundation.

#### DISCUSSION

On the territory of Drohiczyn there have been recorded 86 lichen species. The lichen biota of other towns with a similar number of inhabitants as Drohiczyn documented in literature (RYDZAK 1956 a, b, 1957, 1959, JAGIELŁO 1983), is characterised by a poorer species composition of lichens. The analysed towns differ due to a significant number of species growing on the bark of trees and shrubs (Białowieża – 68 species,

Limanowa – 60, Ciechanowiec – 55, Drohiczyn – 43, Drezdenko – 39). Their rich species variety and abundant occurrence highlights the maintenance of biocenotic structures deformed to an insignificant extent by anthropopressure. Among the lichens colonizing secondary rock substrata the most frequently represented habitat group are calciphilous lichens bound up with concrete. This species are spread, especially in city zone. The most common-place species are *Lecanora albescens*, *L. dispersa*, *Caloplaca decipiens*, *C. saxicola*, *Candelariella aurella*, *Phaeophyscia orbicularis*, *Xanthoria parietina*. They frequently cover large surfaces, especially on old plaster of houses, on walls and poles. Terricolous lichens have been found outside urban settlements, primarily in forest fragments, grass, on sandy wasteland situated in the vicinity of administrative city boundaries and on the outskirts. In all of the towns, a group of species can be differentiated, the ones which have found here optimal living conditions. These are common nitrophyllous lichens, coniophilous lichens of order *Buelliales* and of family *Lecanoraceae*, frequently growing in large populations.

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