



INTERESTING VASCULAR FLORA OF A NEW JEWISH CEMETERY IN OLKUSZ IN THE JURA KRAKOWSKO-CZĘSTOCHOWSKA REGION

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ABSTRACT. The paper contains a list of 64 species of vascular plants recorded at the New Jewish Cemetery in Olkusz. The described cemetery constitutes a valuable and exceptional refuge for xerothermic flora in an urbanized area. It is a locality for a rich population of a protected species, *Epipactis atrorubens*, and *Erysimum odoratum*, found locally throughout Poland.

KEY WORDS: Jewish cemetery, Olkusz, Jura Krakowsko-Częstochowska, vascular plants, *Epipactis atrorubens*, *Erysimum odoratum*

INTRODUCTION

The first reports on Jewish inhabitants of Olkusz date back to a period before 1317. Jews may have left the town at a later date. Only starting from the 16th century archival data again reported the presence of Jews in Olkusz. There are two Jewish cemeteries in the town, the old and the new one. Floristic studies were conducted on the new Jewish cemetery, established at the turn of the 19th and the 20th centuries, located at the Jan Kanty street (Fig. 1). It is situated at an escarpment sloping slightly in the southerly direction. The cemetery is 35 × 35 m in size. In mid-1990's there were approx. 200 tombstones [Hebrew masebha] and their fragments, of which the oldest came from the early 20th century (KOCJAN et al. 2003). Most tombstones are no longer found in their original sites (Fig. 2 A). Preserved inscriptions give information on the deceased buried, reporting the date of death, sometimes surnames of the dead and more frequently only their first names. Over a considerable part of the cemetery, it is surrounded by foundations of a fence, while on one side by remains of a building, probably a former funeral parlour.

Next to forest complexes, cemeteries play an important role in the Polish landscape. Providing many regions of the country with characteristic features and a unique charm, they always enhance and supplement its natural value. Vegetation of a cemetery, similarly as any other type of vegetation in the landscape transformed by human activity, is a result of natural forces and human impact. A decreasing effect of human activity makes it possible to recreate natural plant communities, in which we may find rare and valuable species. Such a process was observed at the New Jewish Cemetery in Olkusz. The aim of this study was to present flora of this object

and the characteristics of this flora in relation to other cemeteries, including Jewish cemeteries.

MATERIAL AND METHODS

A survey of the flora in the investigated cemetery was conducted in 2008. Over an entire area of the cemetery a floristical-ecological report was prepared. The degree of plant cover was given in a simplified 3-point scale. In order to verify a subjective perception of the floristic uniqueness of the described cemetery a comparative analysis of flora was conducted between this object and 22 other necropolises. The compared cemeteries were divided into three groups: 1 – non-Jewish cemeteries in the nearest vicinity of the investigated object (Chechło, Cieklin, Kosmolów, Kroczyce, Maciejówka, Olkusz, Osiek, Sokolniki, Spławy; CZARNA and NOWIŃSKA unpublished data); 2 – Jewish cemeteries in the Polish part of the Western Carpathian Mountains (Krościenko, Nowy Targ, Nowy Sącz, Mszana Dolna; CZARNA and NOWIŃSKA 2010); 3 – Jewish cemeteries of the Wielkopolska region (Babiak, Grabów, Izbica Kujawska, Jarocin, Kutno, Przedecz, Stary Półwiosek, Szlichtyngowa, Trzemeszno; CZARNA unpublished data). Flora of the analysed object and the compared groups of cemeteries was characterised in terms of the proportions of geographic-historical groups, the shares of cultivated species and the shares of species typical of xerothermic grassland. Affiliation of grassland species to syntaxonomic units in the rank of classes was based on a study by BABCZYŃSKA (1978). Herbarium material was deposited at the herbarium collection of the Department of Botany, the Poznań University of Life Sciences (POZN).

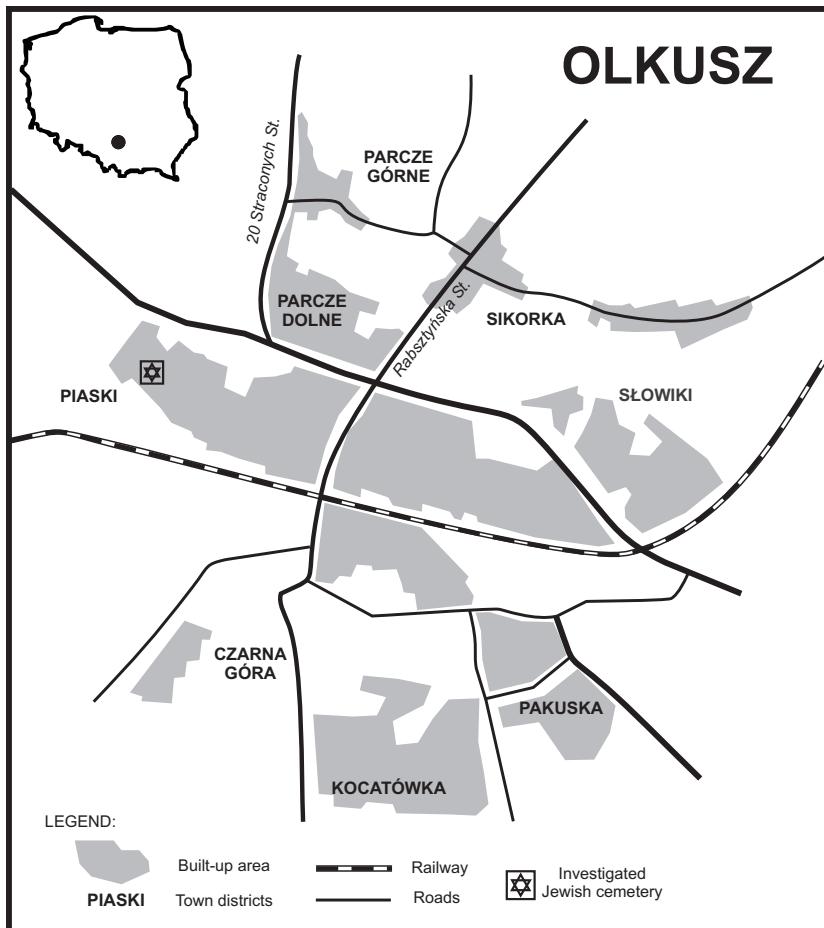


FIG. 1. Locality of New Jewish Cemetery in Olkusz



A

B

FIG. 2. A view of the New Jewish Cemetery in Olkusz (A), *Erysimum odoratum* (16.07.2009) (B) Photo A. Czarna

RESULTS

In the investigated cemetery a total of 64 vascular plant species were recorded (the degree of plant cover is given in brackets):

The tree layer (total cover 10%): *Pinus sylvestris* (2), *Betula pendula* (1), *Robinia pseudoacacia* (1), *Tilia platyphyllos* (1);

The shrub layer (total cover 30%): *Pinus sylvestris* (3), *Betula pendula* (1), *Caragana arborescens* (1), *Cornus sanguinea* (1), *Corylus avellana* (1), *Padus serotina* (1), *Populus tremula* (1), *Quercus robur* (1), *Rhamnus cathartica* (1), *Robinia pseudoacacia* (1), *Rosa canina* (1), *Rosa canina* × *R. rubiginosa* (1), *Rubus idaeus* (1), *Salix repens* (1), *Sorbus aucuparia* (1);

The herbaceous layer (total cover 85%): *Avenula pubescens* (3), *Dianthus carthusianorum* (2), *Silene otites* (2), *Thymus serpyllum* (2), *Achillea pannonica* (1), *Agrostis gigantea* (1), *Alyssum alyssoides* (1), *Anthyllis vulneraria* (1), *Armeria maritima* (1), *Artemisia campestris* (1), *Asplenium ruta-muraria* (1), *Cardaminopsis arenosa* (1), *Carex ericetorum* (1), *Carex hirta* (1), *Cerastium arvense* (1), *Cerastium holosteoides* (1), *Corynephorus canescens* (1), *Dactylis glomerata* (1), *Epipactis atrorubens* (1), *Erysimum odoratum* (1), *Euphorbia cyparissias* (1), *Euphrasia nemorosa* (1), *Festuca ovina* s.s. (1), *Festuca rubra* (1), *Fragaria vesca* (1), *Galium mollugo* s.s. (1), *Geranium robertianum* (1), *Gypsophila fastigiata* (1), *Helianthemum nummularium* (1), *Knautia arvensis* (1), *Koeleria glauca* (1), *Leontodon hispidus* (1), *Lotus corniculatus* (1), *Luzula campestris* (1), *Plantago lanceolata* (1), *Pimpinella nigra* (1), *Pimpinella saxifraga* (1), *Potentilla arenaria* (1), *Ranunculus acris* (1), *Rumex acetosella* (1), *Rumex thrysiflorus* (1), *Scabiosa ochroleuca* (1), *Silene nutans* (1), *Sedum acre* (1), *Silene vulgaris* (1), *Trifolium pratense* (1), *Trifolium repens* (1), *Veronica chamaedrys* (1), *Viola tricolor* (1).

The abundance of species in the analysed cemetery is comparable to that in other Jewish cemeteries in southern Poland (on average 64 species) and it was slightly higher than in Jewish cemeteries in the Wielkopolska region (on average 35 species).

A particular floristic value of the investigated cemetery is connected with the very high accumulation of native species. They account for 95% of the total number of species. Other Jewish cemeteries are characterised by the share of native species lower by approx. 10%. In turn, in non-Jewish cemeteries located in the Jura Krakowsko-Częstochowska region the mean share of native species amounted to slightly less than 70% (Fig. 3). Resistance to the colonisation of herbaceous anthropophytes results from the recreation of the natural plant community in that area. Among plants species of xerothermic grasslands account for approx. 37%. The highest share is recorded for groups of plants from communities of the class *Festuco-Brometea* – 12 species, *Sedo-Scleranthea* – five species, *Molinio-Arrhenatheretea* – three species and *Asplenietea*, *Tunico-Poetum*, *Phleion boehmeri*, *Spergulo-Corynephoretum* with one species each. In this group of plants the most valuable species included *Alyssum alyssoides*, *Anthyllis vulneraria*, *Erysimum odoratum* (Fig. 2 B), *Gypsophila fastigiata*, *Helianthemum nummularium*, *Koeleria glauca*, *Scabiosa ochroleuca*, *Silene otites*

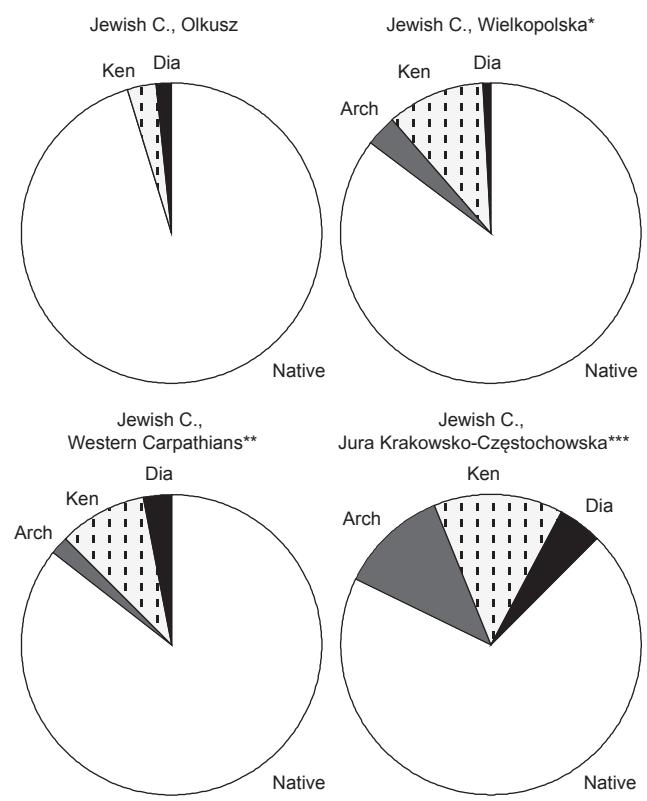


FIG. 3. Share of geographic-historical status groups: Arch – archaeophytes, Ken – kenophytes, Dia – diaphytes and native species in the flora of cemeteries

Source: *CZARNA (unpubl), **CZARNA and NOWIŃSKA (2010), ***CZARNA and NOWIŃSKA (unpubl).

and albino *Dianthus carthusianorum*. Despite the fact that the habitats of xerothermic communities are relatively frequently found in southern Poland, in compared cemeteries from the Jura Krakowsko-Częstochowska region and from the Western Carpathians the share of this group of plants is max. 5% (Fig. 4).

All the recorded species are found throughout Poland, while only *Erysimum odoratum* is a local species

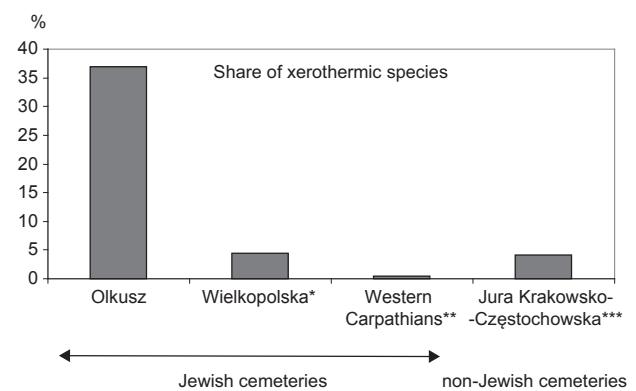


FIG. 4. Share of xerothermic species in the flora of cemeteries

Source: *CZARNA (unpubl), **CZARNA and NOWIŃSKA (2010), ***CZARNA and NOWIŃSKA (unpubl).

(ATLAS... 2001). We need to focus particularly on several other plants, i.e. a numerous population of a protected species *Epipactis atrorubens*, the presence of *Euphrasia nemorosa* listed in the Red Book of plants and fungi of Poland (ZARZYCKI and SZELĄG 2006) as well as a spontaneous hybrid *Rosa canina* × *R. rubiginosa*. The inter-species hybrid has not been recorded to date in the Jura Krakowsko-Częstochowska region (DOBROZDŁA 1955, BABCZYŃSKA 1978, WIKA 1989, BALCER 2001, DROBNIK 2003). The low share of cultivated plants in the flora is a characteristic feature of Jewish cemeteries and it distinguishes them from contemporary Catholic or municipal cemeteries (Fig. 5). The species planted in the analysed cemetery is *Caragana arborescens* and possibly also *Salix repens*. *Asplenium ruta-muraria* was found in cracks of the cemetery wall. According to a study by MACIEJCZAK (2008), cracked walls are important localities of many fern species in urbanized areas.

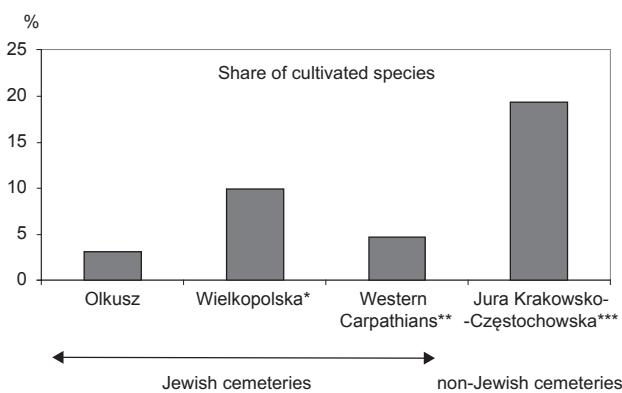


FIG. 5. Share of cultivated species in the flora of cemeteries
Source: *CZARNA (unpubl.), **CZARNA and NOWIŃSKA (2010), ***CZARNA and NOWIŃSKA (unpubl.).

CONCLUSION

Recorded results indicate that the investigated cemetery differs in terms of natural value from Jewish and non-Jewish cemeteries in different regions of Poland. Despite the fact that it is situated in a large town, it is a refuge for valuable species (interesting xerothermic, protected and threatened species). Covering the cemetery with protection for historic and religious reasons

will at the same time contribute to the preservation of the local interesting flora.

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