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FIRST RECORD OF *Pyrenula chlorospila* Arnold (PYRENULALES: PYRENULACEAE) FROM THE MALTESE ISLANDS (CENTRAL MEDITERRANEAN)

Jennifer Fiorentino[1]

ABSTRACT

One specimen of an inconspicuous, corticolous lichen found on the bark of an oak tree at Buskett was identified as *Pyrenula chlorospila* Arnold. This species is not included in the checklist published by Sommier and Caruana Gatto in Flora Melitensis Nova (Sommier & Caruana Gatto, 1915). Instead *Pyrenula nitida* var *nitidella* is mentioned which name is also used for specimens in Caruana Gatto's collection housed in the herbarium at Argotti. Three of these specimens were also examined and were found to represent *P. chlorospila*. Consequently, *Pyrenula chlorospila* is recorded for the first time from the Maltese Islands.

INTRODUCTION

The lichens of the Maltese Islands are poorly known. The only floristic work is that of S. Sommier and A. Caruana Gatto (Sommier & Caruana Gatto, 1915).

The genus *Pyrenula* is characterized by its crustose thallus containing algal cells of the genus *Trentepohlia*. Its fruiting bodies consist of black perithecia which produce 3-septate spores (Purvis *et al.*, 1992). The most common species in the Mediterranean area are *P. chlorospila* Arnold and *P. macrospora* (Degel.) Coppins & P. James. These are species growing mostly on the smooth bark of deciduous trees in shaded humid conditions
The checklist of lichens of the Maltese Islands published by Sommier & Caruana Gatto (1915) refers to a *Pyrenula nitida* var *nitidella* found growing on carob tree branches at Buskett. In a previous paper published in CMN (Fiorentino, 2002), the synonym *Pyrenula nitida* for *Pyrenula nitida* var *nitidella* was used as at that time no reference to this variety was found. Since then, a more recent publication (Nimis & Martellos, 2003) suggests that the synonym for *Pyrenula nitida* var *nitidella* (Schaer) should be *Pyrenula nitidella.*
Caruana Gatto's collection of lichens was identified by A. Jatta (Sommier & Caruana Gatto, 1915) and is presently housed at the Argotti herbarium. This collection contains numerous specimens of *Pyrenula nitida* var *nitidella* (syn. *P. nitidella*) growing on different bark samples. Three of these specimens were studied for the present work, together with one specimen from Buskett Gardens (Rabat, Malta).

This is the first record of *Pyrenula chlorospila* Arnold from the Maltese Islands. This lichen may be easily overlooked considering its small size and its fawn- coloured thallus.

MATERIAL & METHODS

One specimen collected from Buskett Gardens on the outskirts of Rabat, Malta (N 35° 51' E 14° 24') found on a 2-cm thick branch of an oak tree (*Quercus ilex*) was studied (*Fig. 1).* Additionally, 3 specimens (C/L5/03) from the Argotti herbarium, from unspecified localities and previously identified by Antonio Jatta (Sommier & Caruana Gatto, 1915) as *Pyrenula nitida* var *nitidella,* were studied.

Specimens were observed with a stereomicroscope at X20. A compound microscope was used to observe spores at X100 and X400.

Morphology: Thallus fawn with a waxy aspect, showing in some parts a brown prothallus. Perithecia numerous, 0.15 to 0.3 mm in diameter, most of which almost totally immersed; ostiole of each involucrellum surrounded by a lighter coloured area; many empty pits left off by eroded perithecia present. Numerous white small, rounded pseudocyphellae, 30-70 μm in diameter were scattered across the whole thallus. Thalli of Argotti Herbarium specimens were fawn to pale brown in colour and presented all the above features.

[1] Department of Biology, University Junior College, Msida, Malta Email: jennifer.fiorentino@um.edu.mt

Fig. 1. Thallus and apothecia of *Pyrenula* specimen found by author at Buskett Gardens, Rabat

Chemistry: Thallus C^-, K^+ yellow (reaction taking some time to develop), PD-. Sections of perithecial wall K- (without reddish purple reaction; in some of these sections a yellow pigmentation tended to diffuse into the K medium. This must have been due to the K^+ yellow reaction of thallus tissue still attached to the perithecial wall). The same reactions present also in material from the Argotti herbarium.

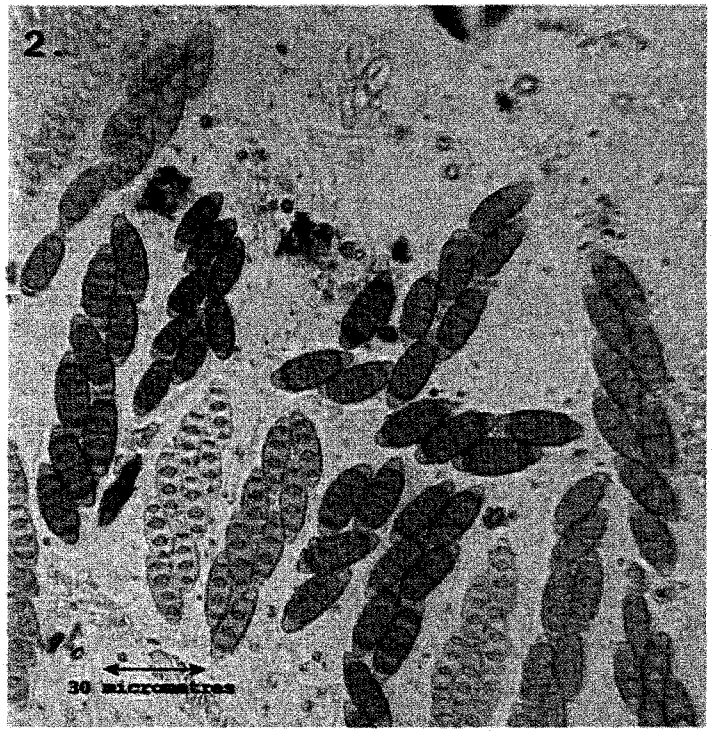

Fig. 2. Asci and spores of *P. cholorospila* specimen collected from Buskett.

Anatomy: Asci cylindrical, 8-spored. Spores 23-34.5 × 8-14 µm, brown, narrowly ellipsoid with rounded apices, 3-septate, thick walled, distoseptate (individual cells delimited by a wall formed within the outer wall); cell lumen angular (*Figs. 2 and 3*). Spores of specimens from the Argotti herbarium: 23-38 × 8-14 µm (*Fig. 4*).

DISCUSSION AND CONCLUSIONS

All examined specimens of *Pyrenula chlorospila* from the Maltese Islands are very similar to each other. They differ from other European specimens in the chemistry. Purvis *et al* (1992) report that the thallus of *P. chlorospila*

from Great Britain and Ireland reacts Pd+ faint yellow. This was not the case with the Buskett specimen and with the specimens from the Argotti Herbarium. Clauzade & Roux (1985) do not report any information on PD reaction. K test on thallus and perithecial sections as well as C test on thallus of all four local specimens agreed with Purvis *et al* (1992) and Clauzade & Roux (1985).

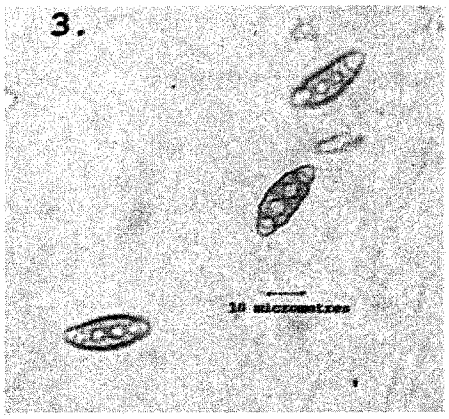

Fig.3. Spores of *P. chlorospila* from Buskett

Fig. 4. Spores of *Pyrenula* sp. from Herbarium collection Argotti

Spore size is in accordance with descriptions from other European countries. Clauzade & Roux (1985) report a size of 20-38 × 9-15 µm from western Europe, and according to Purvis *et al.* (1992), spores have a (25-)28-32(-35) × (9-)11-13(-14) µm size in Great Britain and Ireland.

One should also add that while Purvis *et al* (1992) declare that *P. chlorospila* has white spots (pseudocyphellae) between 50-75 µm in diameter, Clauzade & Roux (1985) contend that white spots are rarely or never found on this species. The specimen found at Buskett as well as the Herbarium specimens had numerous white patches as reported above.

The specimens of the Herbarium Argotti are reviewed as *Pyrenula chlorospila* Arnold, since not belonging to *Pyrenula nitida* var *nitidella* (*P. nitidella*) as indicated on the label and as quoted in the checklist of the lichens of the Maltese Islands (Sommier & Caruana Gatto, 1915). *P. chlorospila* differs from *P. nitidella* in the K reaction of perithecial sections and in the spore size, which is quoted as 15-25 × 5-9 µm (Clauzade & Roux, 1985) and (20-)22-26(-28) × (8-)8.5-11(-12) µm (Purvis *et al*, 1992). *P. chlorospila* has been often mistaken for *P. nitidella.* According to Nimis & Poelt (1987), the record of *P. nitidella* from Sardinia by Baglietto (1879) refers to *P. chlorospila,* while Purvis et al., (1992) state that most pre-1980 records of *P. nitidella* from the British Islands belong to *P. chlorospila.*

The specimen at Buskett and the examined specimens from the Argotti Herbarium represent the first record of *Pyrenula chlorospila* from the Maltese Islands. Having a different chemistry in comparison to described *P. chlorospila* from other countries, they could represent a new variety or subspecies. Further investigations, including studies on chemistry by TLC (Thin Layer Chromatography), will be therefore necessary to better understand its taxonomic position.

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