Usnea wirthii – A new species of lichen from Europe and North Africa

PHILIPPE CLERC

RÉSUMÉ

CLERC, P. (1984). Usnea wirthii – Une nouvelle espèce de lichen d'Europe et du nord de l'Afrique. *Saussurea* 15: 33-36. En anglais, résumé français.

Une nouvelle espèce de lichen, *Usnea wirthii,* est décrite pour l'Europe et le nord de l'Afrique. Elle se caractérise par la présence d'un pigment jaune dans la médulle et l'axe central ainsi que celle de l'acide psoromique, plus rarement l'acide norstictique dans les soralies.

ABSTRACT

CLERC, P. (1984). Usnea wirthii – A new species of lichen from Europe and North Africa. *Saussurea* 15: 33-36. In English, French abstract.

The lichen *Usnea wirthii* sp. nova is reported from South West Europe, North Africa and Madeira. It is characterized by a yellow pigment in the medulla and in the axis as well as psoromic acid, more rarely norstictic acid in the soralia.

During my studies of some *Usnea* species of Western Europe in the Frey Herbarium in Bern, I found a specimen from France (Aude) labelled *U. subpectinata* Stirt., identified by J. Motyka. This collection consists in three thalli possessing a unique combination of morphological and chemical characters. A search in other herbaria revealed additional material with the same characters.

Material and Methods

The following account is based on specimens deposited in the following herbaria: BERN, PC, LISU, M and the private herbarium of Dr. K. Kalb (D-Neumarkt). All the material referred to in this paper has been examined by thin-layer chromatography (TLC) with the techniques described by CULBERSON & AMMANN (1979) (Rf classes according to the solvents A/B/C, e.g.: 5/4/5). Spot tests were performed with conventional reagents (CLERC, 1984).

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Systematics

Usnea wirthii sp. nov.

Thallus fruticosus, suberectus, ca. 4 cm longus, in herbario ochraceus ad fusciculus. *Rami* tereti, attenuati aut leviter fusiformes, rimosi, aniso-dichotomiter ramosi. Rami principales 0.8-1 mm diam. *Papillae* rami principalis numerosae. *Fibrillae* sparsae. *Pseudocyphellae* numerosae insidens papillis erosis. *Isidiae* nullae aut rarae. *Soraliae* praecipue ad partes subapicales ramorum crebra, leviter excavatae, PD^+ flavescens. *Apothecia* ignota.

Cortex 40-90 µm crassus. *Medulla* 130-250 µm crassa, ± crebra ad sublaxa, *distincte luteola super ca. 60-120 µm versus axim* et idi K^+ aurantiaco-flavescens, C^+ aurantiaco-flavescens, KC^{++} aurantiacus, PD^+ leviter flavescens. *Axis* 300-330 µm in diametro, *eburneus in ramis principalibus, luteolus in ramis terminalibus,* K^+ aurantiaco-flavescens, C^+ aurantiaco-flavescens, KC^{++} aurantiacus, PD^+ leviter flavescens. Acidum usnicum, *acidum psoromicum* et ± acidum aliphaticum ignotum (5/4/5) continens.

Holotypus: France – Aude: forêt des Fanges à l'est de Quillan, *Abies, Fagus, Sorbus aria, S. aucuparia, Ilex, Quercus ilex,* E. Frey, 18.7.1951 (BERN).

Thallus fruticose, up to 4 cm in length, with a pale base. Colour after storage in herbarium brown yellowish to dark brown. *Branches* terete, tapered or often somewhat constricted at the base and then slightly fusiform, distinctly segmented by annular cracks bordered by white rings of everted medullary tissue and showing conspicuous gaps between the segments especially at the ramification points, so that the axis is distinctly visible. *Papillae* numerous on the main branches. *Fibrillae* sparse. *Pseudocyphellae* numerous on eroded papillae, becoming later sorediate. *Isidiae* absent or rare. *Soralia* numerous, especially at the apical part of the thallus, slightly excavate, PD^+ yellow, K^+ brownish-yellow, C^-, KC^-. *Apothecia* unknown.

Cortex 40-90 µm thick. *Medulla* 130-250 µm thick, ± dense to lax, *distinctly light yellow over an inner zone of 60-120 µm around the axis* and then K^+ yellow-orange, C^+ yellow-orange, KC^{++} orange, PD^+ slightly yellowish. *Axis* 300-330 µm in diameter, *yellowish white in the main branches, yellow in the apical branches,* K^+ yellow-orange, C^+ yellow-orange, KC^{++} orange, PD^+ slightly yellowish.

Chemistry: usnic acid, *psoromic acid,* ± unknown fatty acid (Rf classes: 5/4/5) and ± two unidentified substances.

Usnea wirthii is named in honour of Dr. V. Wirth (D-Ludwigsburg) for his outstanding contributions to the knowledge of the European lichen flora.

Additional specimens studied

France. – Corrèze: route nationale entre Montaignac-Egletons (Tulle-Egletons), Rosiers, hêtres plantés en allée, *Ramalinetum farinaceae* et *Parmelietum sulcatae,* 600 m, 29.7.1950 E. Frey (BERN). – Corse du sud: entre Boccognano et Ajaccio, sur *Quercus ilex,* 410 m, 5.8.1968 K. Kalb (K. Kalb). – Loire Atlantique: Escoublac, sur un pin, 8.1879 Hue (PC). **Portugal.** – Beira alta: Serra do Caramulo-Campia, sobre o ritidoma das arvores, 1.1.1947 Fl. Resende (LISU). – Madeira Islands, Madeira, auf verwitterter Lava, 1857 A. Jelinek (M). **Spain.**

– Prov. Barcelona: Aiguafreda entre Vich et Granollers, des fagots préparés pour le transport par le chemin de fer, les ramilles proviennent probablement des plateaux voisins, 400 m, 14.4.1950 E. Frey (BERN). **Tunisia.** – Plantae tunetanae, Bebnétiz (?), in silvis, 800 m, 2.1907 C. J. Pitard (PC).

Results and Discussion

The distinguishing features of *U. wirthii* are the yellow pigment in the medulla and the occurrence of psoromic acid. It appears that this combination of characters is unique and of diagnostical value for the separation of this taxon.

Pigmentation is considered by SWINSCOW & KROG (1979) as a very important taxonomical character in *Usnea.* Such a yellow pigmentation in the medulla was hitherto unknown in the genus *Usnea.* This yellow pigment cannot be extracted with acetone and reacts K^+ yellow-orange, KC^{++} orange, PD^+ slightly yellow.

Psoromic acid occurs in the soralia (PD^{++} yellow). *Usnea wirthii* is the first european *Usnea* which has been found to contain psoromic acid. In some specimens traces of conpsoromic acid can be found. Among the eight hitherto

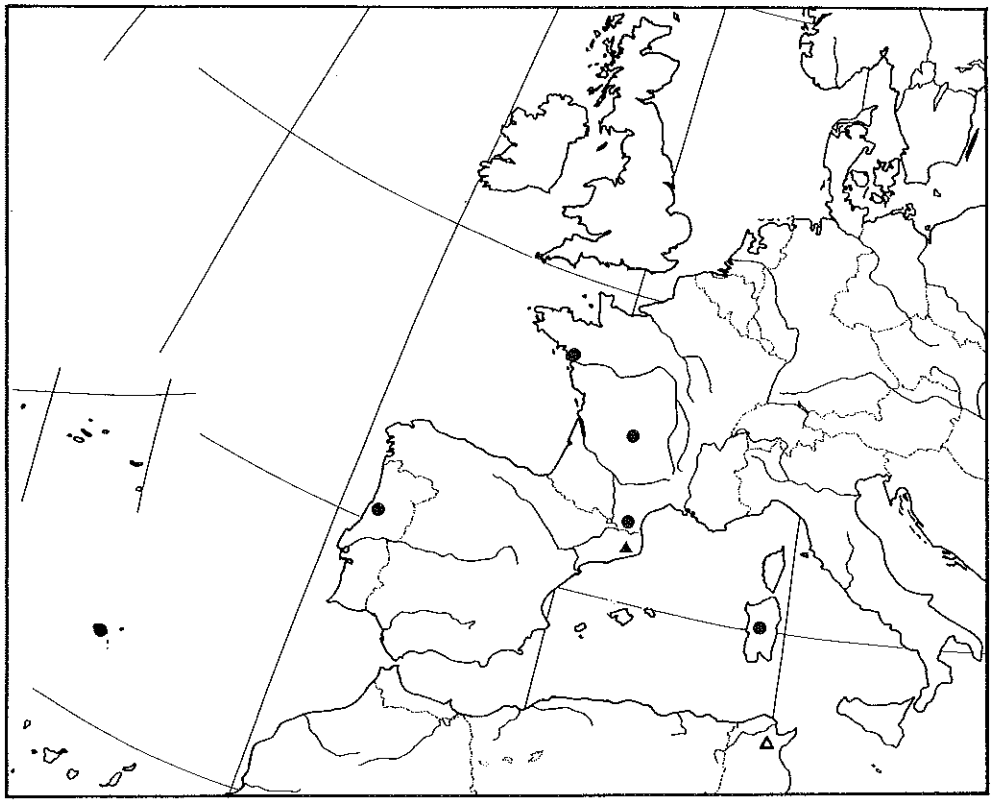

Fig. 1. – Distribution map of *Usnea wirthii.* Black circle: chemotype with psoromic acid; black triangle: chemotype with norstictic acid (open triangle: locality uncertain).

known collections there are two with norstictic acid as main substance with trace of salazinic acid (see Fig. 1). This can be considered as a particular chemical strain of *U. wirthii.* The unknown fatty acid (Rf classes: 5/4/5) occurs quite regulary even in the norstictic acid strain.

MOTYKA (1936-1938) would certainly have put this species into the section *Glabratae* Mot. Indeed it has some similarities with some morphotypes of the *U. inflata* aggregate (*U. cornuta* Koerb., *U. inflata* Del., *U. intexta* Stirt. and *U. subpectinata* Stirt.) the latter differing in having an unpigmented or slightly pink-red medulla after storage in herbarium and a different chemistry (salazinic acid or stictic acid gr.) (CLERC, unpublished results). *U. wirthii* is morphologicaly rather variable. The main and secondary branches may be inflated and distinctly constricted at the base, with a very lax medulla. This morphotype is very close to *U. glabrata* (Ach.) Vainio but easily distinguished by the occurrence of the yellow pigment, the numerous papillae and the different chemistry (*U. glabrata* contains protocetraric acid, KROG & al., 1980).

The colour of the living thallus is unknown to me as the most recent collection I have seen dates from 1968 (K. Kalb).

The eight samples are mapped in Figure 1. The species seems to be mainly corticolous but has been found once on lava in Madeira (M). Additional collections and field studies are needed to define the ecology and the exact distribution range of this species. *U. wirthii* is probably a rare species. How could we otherwise explain the fact that is has not been described until now. Checking herbaria, especially those of Southern Europe, should permit to find some more localities.

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Address of the author: Systematisch-Geobotanisches Institut der Universität Bern, Altenbergrain 21, CH-3031 Bern.