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NOTES ON SOME DUTCH CLADONIAE (LICHENES)

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Cladonia crispata (Ach.) Flot. var. *subcrispata* Hennipm., var. nov. is described, which shows the P + reaction. *Cladonia subrangiformis* Sandst. is reduced to a varietal state under *C. furcata*, and *C. delicata* (Ehrh.) Flörke var. *subsquamosa* Nyl. ex Leight. is transferred to *C. squamosa* (Scop.) Hoffm. as *C. squamosa* var. *allosquamosa* Hennipm., nom. nov.

While studying the species of *Cladonia* represented in the 'Rijksherbarium', some collections were found, which showed sufficient noteworthy or aberrant features as to justify the following remarks.

CLADONIA CRISPATA (Ach.) Flot.
var. **subcrispata** Hennipm., *var. nov.*

A forma typica, cui morphologice congrua, paraphenylendiamino colore rubescente diversa, ut videtur, acidum fumarprotocetraricum continens.

Netherlands (prov. Drente), Dwingelo, 1 Aug. 1941, *R. A. Maas Geesteranus 1460* (type, L).

Cladonia crispata is a member of the subsection *Chasmariae* in the subgenus *Cenomyce*. In this subsection Dahl (1952: 125) proposed two new series, ser. *Furcatae* E. Dahl and ser. *Squamosae* E. Dahl (neither of which were validly published), which he based on different morphological and chemical properties. According to him, the lichen substances thamnolic acid and squamatic acid would be characteristic of ser. *Squamosae*, whereas atronoric acid and fumarprotocetraric acid would be so of ser. *Furcatae*. However, des Abbayes (1963: 218) described from Vietnam a *Cladonia tixieri*, which is obviously related to *C. squamosa* (Scop.) Hoffm., but turns reddish with P.

The unmistakable P + reaction of the present variety, var. *subcrispata*, indicating the presence of the depsidon fumarprotocetraric acid, shows that *Cladonia tixieri* is not an isolated case. Variety *subcrispata* may be expected to give difficulties in its distinction from certain forms of *Cladonia furcata* (Huds.) Schrad.

CLADONIA FURCATA (Huds.) Schrad.
var. **subrangiformis** (Sandst.) Hennipm., *comb. nov.*

Cladonia subrangiformis Sandst. *in* Abh. naturw. Ver. Bremen **25**: 165. 1922 (basionym.) — *Cladonia furcata* (Huds.) Schrad. m. *subrangiformis* (Sandst.) Schade *in* Nova Hedwigia **11**: 293. 1966.

Cladonia furcata can be demonstrated to possess a number of different chemical

constituents. It is proposed to treat the specimens that turn reddish with P and yellow with K, signifying the presence of fumarprotocetraric acid and atronoric acid respectively, as a separate variety. The present variety is a case in point.

Des Abbayes (1937: 160) already regarded Sandstede's species as an infraspecific taxon under *C. furcata* (". . ., il ne constitue rigoureusement qu'une bonne variété de *Cl. furcata.*"), but failed to make a new combination. I agree with Schade (1966: 304) that the characters of the cortex have no specific value.

The variety occurs on calcareous soil in open vegetations.

CLADONIA SQUAMOSA (Scop.) Hoffm.
var. **allosquamosa** Hennipm., *nom. nov.*

Cladonia delicata (Ehrh.) Flörke var. *subsquamosa* Nyl. *in* Flora **24**: 421. 1866 (nomen nudum); *ex* Leight., Lichen-Fl. Great Brit. 59. 1871. — *Cladonia subsquamosa* (Nyl. ex Leight.) Nyl. *ex* Cromb. *in* J. Linn. Soc. (Bot.) **17**: 560. 1880; not *Cladonia subsquamosa* Krempelh., Lich. Bras. Warm. 2. 1873; not *Cladonia squamosa* (Scop.) Hoffm. var. *subsquamosa* Nyl. ex Vain. *in* Meddn Soc. Fauna Flora fenn. **6**: 113. 1881.

This variety contains thamnolic acid that gives positive reactions in the presence of both P and K.

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