

P E R S O O N I A

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THE EXPANSION OF SCHIZOPORA CARNEOLUTEA  
(BASIDIOMYCETES) IN EUROPE, IN PARTICULAR IN THE  
NETHERLANDS

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It is reported that the number of records of *Schizopora carneolutea* in Europe has strongly increased recently. This increase cannot be explained by better knowledge among mycologists. In the Netherlands the species has rapidly spread from the SE. in NW. direction. A few remarks on the ecology of the species are made.

The genus *Schizopora* Velen. comprises in Europe two species, viz. *S. paradoxa* (Schrad.: Fr.) Donk and *S. carneolutea* (Rodw. & Clel.) Kotl. & Pouzar. The former is in Europe a very common, well-known fungus; the latter is less common and less well-known. The two species are resupinate polypores and grow on dead wood. They are relatively easy to distinguish and extensive descriptions are available (e.g. Jahn, 1971, 1980; Kotlaba & Pouzar, 1979). In short, the main differences are: the pores are irregular, often slit and relatively large (1-3 per mm) in *S. paradoxa*, regularly roundish or polygonal and relatively small (c. 4-7 per mm) in *S. carneolutea*. The colour of the fruit-body is cream-coloured in *S. paradoxa* and light orange-brown in *S. carneolutea*. On vertical substrates *S. carneolutea* usually forms small pilei whereas *S. paradoxa* grows close to the substrate or only forms narrow ridges of pores. Microscopically, the spores of *S. carneolutea* are smaller and more globose than the spores of *S. paradoxa*,  $3.5-4.2 \times 3.0-3.4 \mu\text{m}$  with  $Q = 1.2-1.3$  and  $4.5-5-6 \times 3-3.5-4.2 \mu\text{m}$  with  $Q = 1.4-1.8$ , respectively (Jahn, 1980).

DISTRIBUTION

*Poria carneolutea* was originally described by Rodway & Cleland in 1929 from New Zealand. It was known in Eurasia since 1935 as *Poria phellinoides*, described by Pilát (1936) from Siberia. Kotlaba & Pouzar (1979) discovered the synonymy of *Schizopora carneolutea* and *S. phellinoides*. *Poria flavipora* Cooke (1886) is probably an older name for this fungus and the correct name then would be *Schizopora flavipora* (Cooke) Ryv. (Ryvarden, 1985). The species was generally considered as rare. Jahn (1971) mentioned four known localities for the German Federal Republic until then and Domansky (1972) reported two localities in Poland. Less than 10 years later Jahn (1980) listed 42 records of this species in the central part of the German Federal Republic and Kotlaba & Pouzar (1979) published 108 localities in

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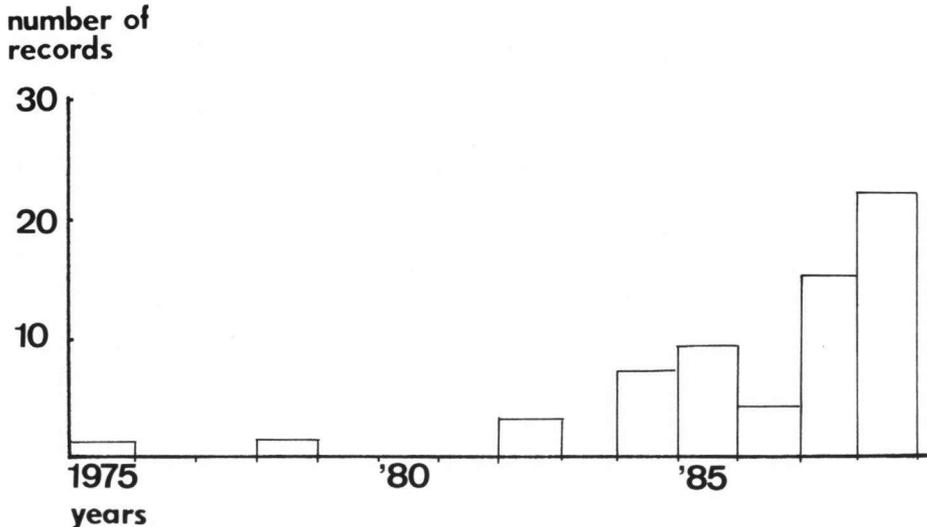


Fig. 1. Numbers of records of *Schizopora carneolutea* from 1975 to 1988.

eastern Czechoslovakia. The species is now also known from the German Federal Republic (Kreisel, 1987), although only from four localities, and occurs frequently in the eastern part of Australia (11 collections in the herbarium of Graz; pers. comm. Prof. Dr. J. Poelt). From the United Kingdom *S. carneolutea* has not yet been reported (pers. comm. herbaria K and E).

Although the species was not generally known before the seventies, it is most improbable that mycologists in that period would not have recognized this species. It must therefore be concluded that *S. carneolutea* was very rare and has drastically increased since. This can be exemplified with Dutch data on the distribution of *S. carneolutea*. In the publication by Donk (1933), who made a thorough study on the Aphyllophorales in the Netherlands, no species were described that fit *S. carneolutea*. The first observation was made by F. Tjallingii in 1975 in S.-Limburg and published by van der Laan (1976). This locality can be regarded as connected with the cluster of records in the central part of the German Federal Republic. After 1975 a strong increase of the number of records appeared, to the total of 62 in 1988 (see Fig. 1). Again, it seems unlikely that the species has completely been overlooked and the conclusion is that the species has strongly increased.

**PATTERN OF DISTRIBUTION IN THE NETHERLANDS.** — The map of distribution of *S. carneolutea* (Fig. 2) in the Netherlands shows that newer records are located more northwards and slightly more westwards compared with older ones. This indicates that the species has spread rapidly from the centre of the German Federal Republic in NW. direction. Even during mycocoenological research in moist *Alnus* and *Salix* forests in Drente in 1981 and 1982 the



Fig. 2. Distribution of the at present (Jan. 1989) known records of *Schizopora carneolutea* in the Netherlands. Data by the courtesy of the Biogeographical Information Centre (B.I.C.) where many ecological and geographical data of various groups of organisms are stored.

\* = records 1975–1979; \* = records 1980–1984; ■ = records 1985–1986; ● = records 1987–1988.

species was not encountered (Keizer, 1985), and only once in 1982 in *Betula* forests (Jalink & Nauta, 1984). Nowadays it is common in these habitats.

The clusters of records of a certain year in some regions reflect the inventory activities of the Dutch Mycological Society and show that not all regions have been studied with equal intensity. In 1986 there was a foray of a week in the province of Zeeland (in the south-western part of the country), and it is striking that *S. carneolutea* was not found in that region, whereas the species was observed in several places during forays in Twente (1985) and northern Limburg (1987).

It is to be expected that within a few years the species will have reached the forests in the coastal dunes and will cover by then the entire country.

#### ECOLOGY

*Schizopora carneolutea* is a saprophyte occurring mostly on the wood of broad-leaved trees. It grows on a wide range of hosts in various types of forests, in the Netherlands mainly in deciduous forests on sandy and clay soils: *Quercion roboripetreae* 17, *Alno-Padion* 14 and other or unspecified forest types 10 records. According to Jahn (1980) in West Germany beech wood is the most common substrate, viz. 69% of the records. He reported seven other deciduous wood hosts with low frequency and one record on *Larix*. The annotated Dutch records are as follows: twelve (or 39%) on *Quercus*, six on *Betula*, four on unspecified broad-leaved wood, two on *Salix alba*, and one on *Alnus*, *Corylus*, *Fagus*, *Frangula*, *Picea*, *Populus canadensis* (or *P. nigra*), and *Sorbus*. Apparently the species is not very specific with regard to the host plant and the list of hosts merely reflects the availability and frequency of substrates. A great majority (77%) of the observations was made on branches of 1–15 cm thick; on thicker logs and trunks the species is rarer.

The habitat of *S. carneolutea* is very similar to that of *S. paradoxa*, illustrated by the fact that both species can often be found growing on the same piece of wood. The impression exists that the latter species is being locally competed away by the former. More detailed observations and in vitro experiments are needed to get more certainty about this supposition.

It is difficult to give a satisfactory explanation for the above described trends. One possibility is that the species has accidentally been imported from the southern hemisphere to Europe or Asia and has spread from there since. Another explanation, though also highly speculative, could be that certain changes have occurred in the environment, possibly caused by human activities, such as increased nitrogen availability or increased acidity of the habitat. These changes might have been in favour of *S. carneolutea*.

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