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## ***Piloporia sajanensis* (Parmasto) Niemelä, a boreal rare polypore new to Italy.**

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**Abstract.** – *Piloporia sajanensis* (Parmasto) Niemelä is reported as new from Italy. It is suggested that the isolated locality could be an Ice Age relict from a time when Italy was covered with coniferous forests.

**Riassunto.** – *Piloporia sajanensis* (Parmasto) Niemelä è stata rinvenuta per la prima volta in Italia, nel Supramonte di Orgosolo, in Sardegna. Si suppone che la località di rinvenimento possa essere considerata come un relitto dell'era glaciale, quando l'Italia era coperta da estese foreste di conifere.

**Zusammenfassung.** – *Piloporia sajanensis* (Parmasto) Niemelä wurde in Italien gefunden. Der isolierte Standort suggeriert, dass es sich um ein Relikt aus der Eiszeit handeln könnte als Italien noch von Nadelwäldern bedeckt war.

**Key words:** *Polyporaceae*, *Piloporia*.

### **Introduction**

In 1994 one of us (A.B.) collected an unknown polypore on a burnt log of *Juniperus oxycedrus* L. subsp. < *macrocarpa* (S. et S.) Ball. in Sardinia. When examined it was first thought to be a light coloured resupinate polypore growing on a dead basidiocarp of a *Phellinus* species. However, a microscopical examination revealed it to be a fine and fertile specimen of the very rare *Piloporia sajanensis* (Parmasto) Niemelä, a boreal polypore never reported from the Mediterranean area.

*Piloporia sajanensis* (Parmasto) Niemelä, Karstenia 22:13, 1982 – *Antrodia sajanensis* Parmasto, Bot. Mater. Otdela Spor. Rast. Bot. Inst. Akad. Nauk. SSSR 15:134, 1962. *Datronia sajanensis* (Parmasto) Domanski, Mala flora grzybow 1:196, 1974. *Incrustoporia sajanensis* (Parmasto) Strid, Wahlenbergia 7:138, 1981.

Basidiocarp annual, resupinate or effused-reflexed. Upper surface, when present, tobacco brown or dark brown, velutinate and soft. Pileus dark sepia brown, up to 70 mm wide and 15 mm thick in some Finnish specimens (Niemelä et al., 1992). Pileus lacking in Italian collection. Pore surface at first white to cream, becoming cork coloured, finally light to dark sepia brown. Pores at first circular and regular, (3) 4–5 per mm, with age splitting and fusing together to form sinuous or even lamellate splits; dissepiments pruinose and ciliate, often lacerate in mature specimens. Subiculum and pilear context duplex in section: lower layer, up to 1 mm thick, cork coloured, separated by a black line from the rusty deep brown upper layer, 0.1–0.5 (1) mm thick. Tube layer up to 3 mm thick, concolorous with the lower layer of the context.

Hyphal system dimitic: generative hyphae clamped; hyaline, branched, 2–3  $\mu\text{m}$  in diam, in the lower part of the context; yellowish brown, thick-walled interwoven, 4–5  $\mu\text{m}$  in diam in the upper part of the context. The hyphae of the black dividing line consist of brown hyphae. Skeletal hyphae thick-walled

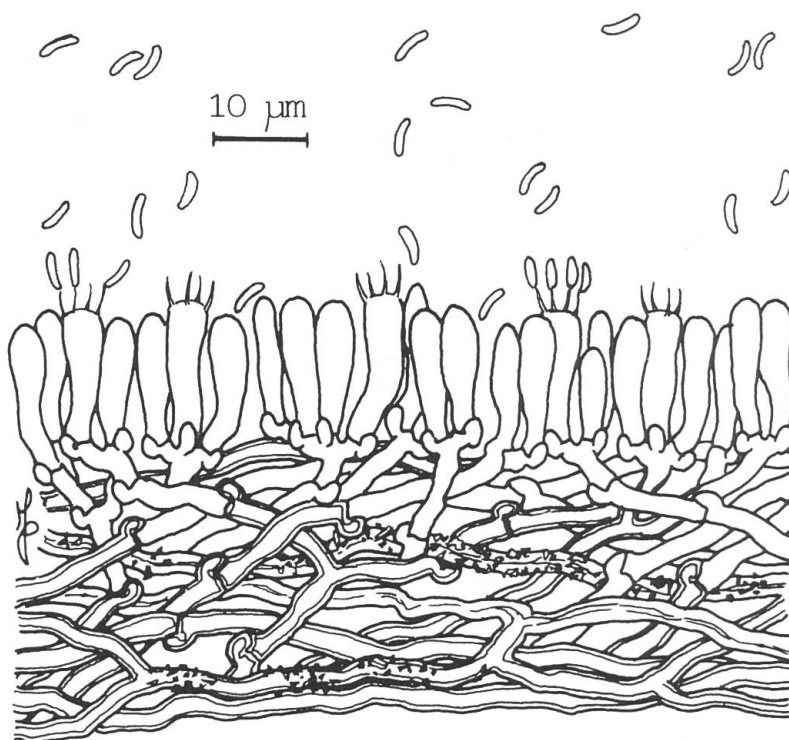


Fig. 1 : Hymenial elements of *Piloporia sajanensis* (drawing of F. Padovan).

to almost solid, hyaline to yellowish nonseptate and sinuous, branched, 2–3 µm in diam. Hyphae of the dissepiments covered with minute crystals over a considerable length, 1.5–2.5 µm in diam. Cystidia absent, fusoid cystidiols present, 10–15 x 3–4 µm.

Basidia clavata, 4-sterigmate, with a basal clamp, 10–14 x 3.5–4.5 µm. Basidiospores hyaline, negative in Melzer reagent, allantoid to almost lunate, 3.5–4 x 0.7–1 µm (Fig. 1).

Type of rot: white rot in dead conifers.

Substrata: in Europe most common on *Picea*, but also found on *Pinus*, the Italian collection is on *Juniperus oxycedrus* subsp. *macrocarpa*. In Asia also recorded on *Abies* and *Larix*.

Distribution: Central Asia, Fennoscandia and the reported isolated locality in Sardinia.

## Discussion

*Piloporia sajanensis* is an interesting polypore both with regard to distribution and ecology as well as systematic position. From the description above it is seen that there are several striking characteristics which deserve some comments.

The pore surface looks like that of any light coloured polypore, but when a section is made, one immediately observes a black zone above the cream-coloured tubes, above which there is a dark brown context. So striking is the colour difference between the tubes and the context, that it looks like a light coloured polypore growing on an old and dead basidiocarp of a different brown polypore.

In its macromorphology it reminds us strongly of *Datronia stereoides* (Fr.:Fr.) Ryvarden which induced a transfer to this genus by Domanski (1974). However, *P. sajanensis* deviate in several microscopical characters from this genus, such as the encrusted dissepimental hyphae and the small allantoid spores. The encrusted skeletal hyphae then induced Strid (1981) to transfer it to *Skeletocutis* Kotl. & Pouzar (at that time called *Incrustoporia* Domanski), a logic transfer since the small allantoid spores are known for several species in this genus. However, Niemelä found the coloured skeletal hyphae of the upper tomentum and the duplex construction, two unknown characters of *Skeletocutis*, so striking, that he decided that a separate genus was needed to accommodate the species.

*P. sajanensis* was discussed by Ryvarden (1986) in the light of a collection from Southern Sweden, a deviating locality compared with the earlier known boreal distribution. He also published a map of its distribution in Fennoscandia.

scandia. Since then several new localities have been discovered in the boreal part of the area, i.e. within what is called the taiga area, characterized by a warm and dry summer and a cold and dry winter, see Niemelä et al. (1992), Renvall et al. (1991), Renvall (1995) and Bader et al. (1995). The general impression of a boreal polypore connected to virgin forests has not been changed by these new collections. The new collection from Sardinia is very remarkable as it widens the distribution by several thousands of kilometers.

The Italian collection has been found in Supramonte di Orgosolo, Campu'e su mudrecu, Sas baddes (Nuoro), at 1000 m of altitude on a trunk of burnt *Juniperus*. The collecting area in Sardinia is peculiar. It is located in central-east Sardinia and is characterized by a typical karst geomorphology, irregularly and markedly furrowed by deep canons. These mountains are well characterized within the Sardinian Floristic District due to the presence of an archaic Mediterranean orophilous flora, rich in paleoendemic plants. The potential natural vegetation of this area is the Holm Oak (*Quercus ilex* L.) forest, widespread all over the place until the middle of the last century. Felling, browsing and grazing have played an increasingly important role during the last hundred years giving origin to a massif process of serial degradation of the vegetation cover, forced to turn to masquis and garigues (Arrigoni e Di Tommaso, 1990/91).

We believe that the presence of *Piloporia sajanensis* in Sardinia must be looked upon as a relict from the last glaciation which lasted some 100 000 years and ended approximately 8000 years ago. During this period all vegetation zones in Europe were pushed southward as the ice covered the whole of Fennoscandia and reached down to Berlin in Germany. Besides that a large ice sheet also covered most of the Alps, for details see map pg. 54–55 in Andersen & Borns 1994. During this maximum glaciation, coniferous forests covered most of the higher areas in the Mediterranean region, and we must assume that much of the biota, characteristic of such forests, existed in the area at that time. When the ice melted, the climate became warmer and the boreal coniferous forests retreated northwards – *Piloporia sajanensis* could have been left on one of its available hosts in this remote and hardly accessible area.

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