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**The septal pore apparatus in *Russula virescens*
(Schaeff.) Fries and *Lactarius volemus* (Fries)**

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SEZIONE III

(Botanica, zoologia, fisiologia e patologia)

Botanica. — *The septal pore apparatus in* *Russula virescens* (Schaeff.) Fries and *Lactarius volemus* (Fries) (*). Nota (**) di GIUSEPPE PATRIGNANI e STEFANIA PELLEGRINI, presentata dal Corrisp. F. M. GEROLA.

RIASSUNTO. — Sono state analizzate al microscopio elettronico, le ultrastrutture dei dolipori nelle ife dicariofittiche di *Lactarius volemus* e di *Russula virescens*. In entrambe le specie, il parentesoma si presenta di forma ellittica e non emisferica, come invece si può osservare nella maggior parte dei Basidiomiceti.

Questa differenza ultrastrutturale nei generi *Lactarius* e *Russula* ci dà una ulteriore conferma che la famiglia delle *Russulaceae* costituisce un raggruppamento sistematico particolarmente omogeneo e naturale.

The dolipore structure of *Basidiomycetes* is of great interest, because though repeating a single scheme it shows remarkable differences in different species (Wells, 1964; Kreger-van Rij and Veenhuis, 1971; Moore and Kreger-van Rij, 1972; Khan, 1976), and sometimes even in the same basidiocarp (Patrignani *et al.*, 1983).

These diversities have been arranged by Patton and Marchant (1978) in a succession that points out the evolution of the dolipore structure from the most primitive with imperforate pore cap to the most evolved with multiperforate pore cap.

Recently, the dolipore structure was taken into consideration for a critical revision of *Phragmobasidiomycetes* and for a dismemberment of *Tremellales* into two different sub-orders: *Tremellineae* and *Exidineae* (Moore, 1978).

Within the *Holobasidiomycetes*, some families occupy an isolated taxonomic position, owing to the characteristics of their hymenophore and basidiocarp hyphae.

To these families belong the *Russulaceae*, which include the genera *Russula* and *Lactarius*. This family appears to be one of the most natural and is characterized by the presence of the sphaerocysts.

MATERIALS AND METHODS

Basidiocarps of *Russula virescens* (Schaeff.) Fries and *Lactarius volemus* Fries were obtained from the Micological Society of Milano (Italy).

(*) Lavoro eseguito con il contributo del CNR.

(**) Pervenuta all'Accademia l'8 luglio 1983.

Small pieces (1 mm³) were fixed in 1,5% glutaraldehyde in 0,1 M cacodylate buffer at pH 7,0 for 2 h. at 4 °C, rinsed in the same buffer and postfixed in 1% OsO₄.

The samples, dehydrated in a graded ethanol series, were embedded in Epon-Araldite.

Sections, double stained with uranyl acetate and lead citrate, were examined with a Siemens Elmiskop 1 A electron microscope.

RESULTS AND DISCUSSION

The dolipore of *Russula virescens* has the typical structure found in many *Basidiomycetes*, with pore caps of multiperforate cisterns containing a three laminate structure resembling a unit membrane.

Both the septal swellings and the pore occlusions, consisting of electron-dense granular material, are well evident (fig. 1). The only difference is that the pore cap is elliptical and not hemispherical, as in the other *Holobasidiomycetes*.

The dolipore/parenthesome in *Lactarius* is also elliptical and has the same structure as that of *Russula* (fig. 2).

This is a further proof that the *Russulaceae* family is a natural one. Of course, it will be interesting to examine the dolipore/parenthesome complex in those *Holobasidiomycetes* which, according to Singer (1951-1975) can be considered as derived from the *Russulaceae*.

It is impossible, at present, to state if the different shape of the dolipore/parenthesome complex has any physiological significance.

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EXPLANATION PLATE I

- Fig. 1. - Dolipore/parenthesome ultrastructure of *Russula virescens*. The pore cap is elliptical. $\times 60.000$.
- Fig. 2. - Dolipore/parenthesome ultrastructure of *Lactarius volemus*. Note the two large septal swellings and the elliptical pore cap. $\times 67.500$.