

**Study of a haplosporidian (*Ascetospora*), parasitizing the Australian flat oyster
*Ostrea angasi***

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Considering the epizootics which affect the French stock of flat oysters, *Ostrea edulis* (Grizel, 1985), trials to introduce an Australian oyster, *Ostrea angasi*, have been undertaken. The spat produced in a hatchery from breeders imported from Australia were reared in the south of Brittany and in Normandy (Bougrier et al., 1986). Following mass mortalities (65% of individuals) a haplosporidian was observed in this species. Sporogenesis of the parasite was studied using light and electron microscopy.

The first instar of development of the haplosporidian appears as a plasmodium enclosing one, two or four nuclei. Maturation occurs in the connective tissue surrounding the digestive gland (Fig. 1) and in the gills where numerous sporocysts (Sc) (Figs. 1, 2) can be seen. Mature spores

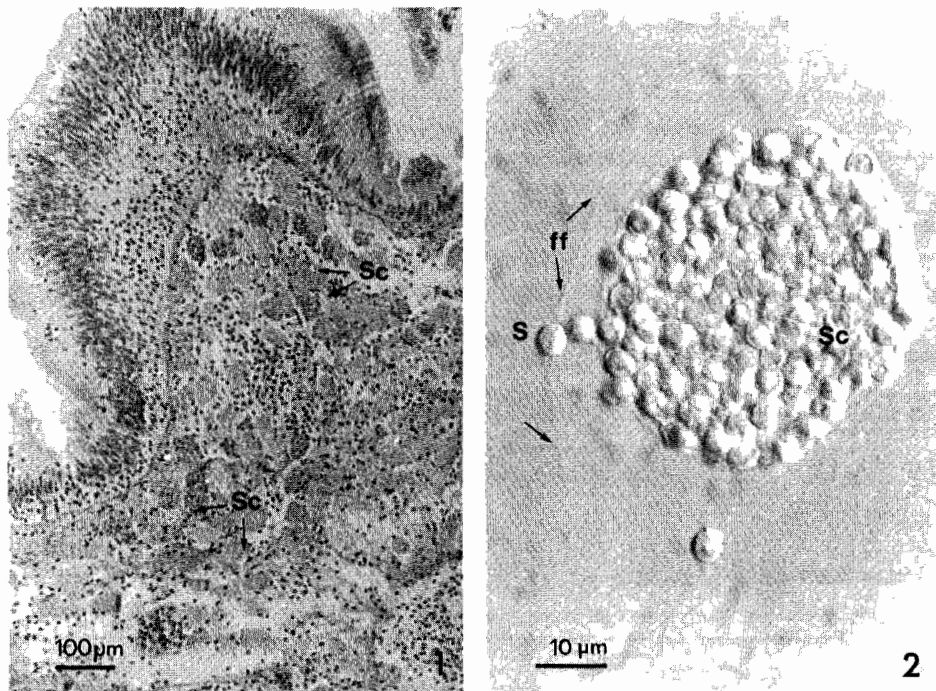


Fig. 1. Sporocysts (Sc) in connective tissue surrounding the digestive gland of *O. angasi*.

Fig. 2. Sporocysts in the gills.

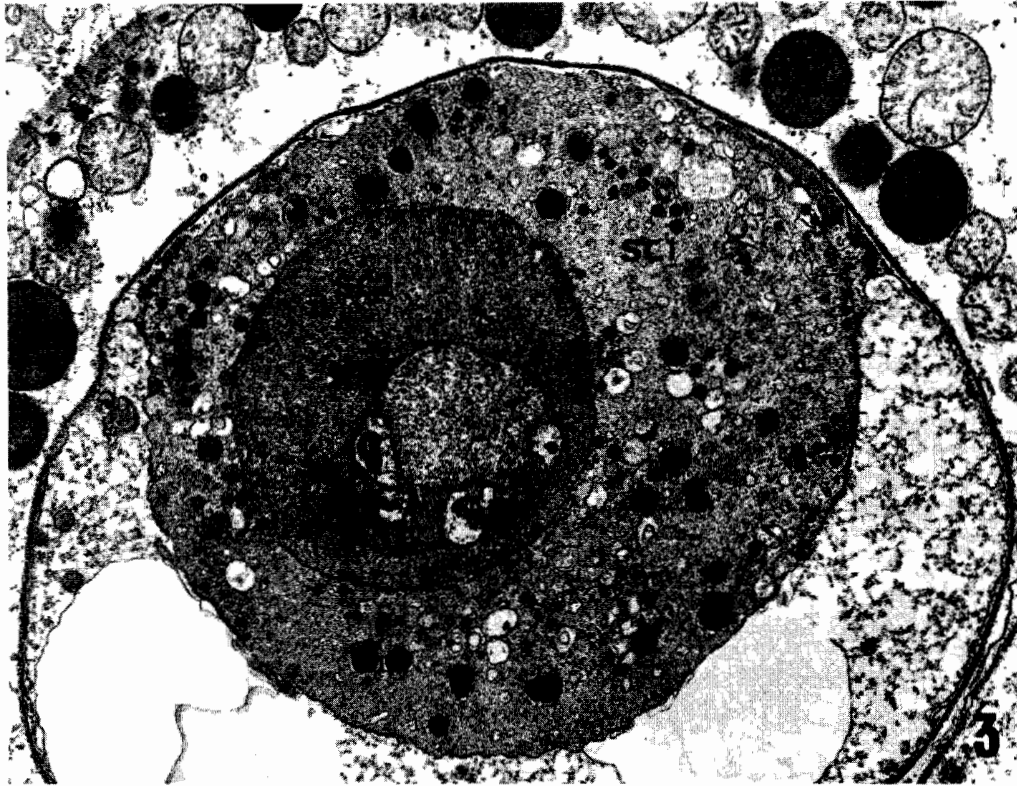


Fig. 3. Tricellular spore differentiated within the sporont. Spores cells (sc1, sc2, sc3). Ultrathin section. $\times 9\ 000$.

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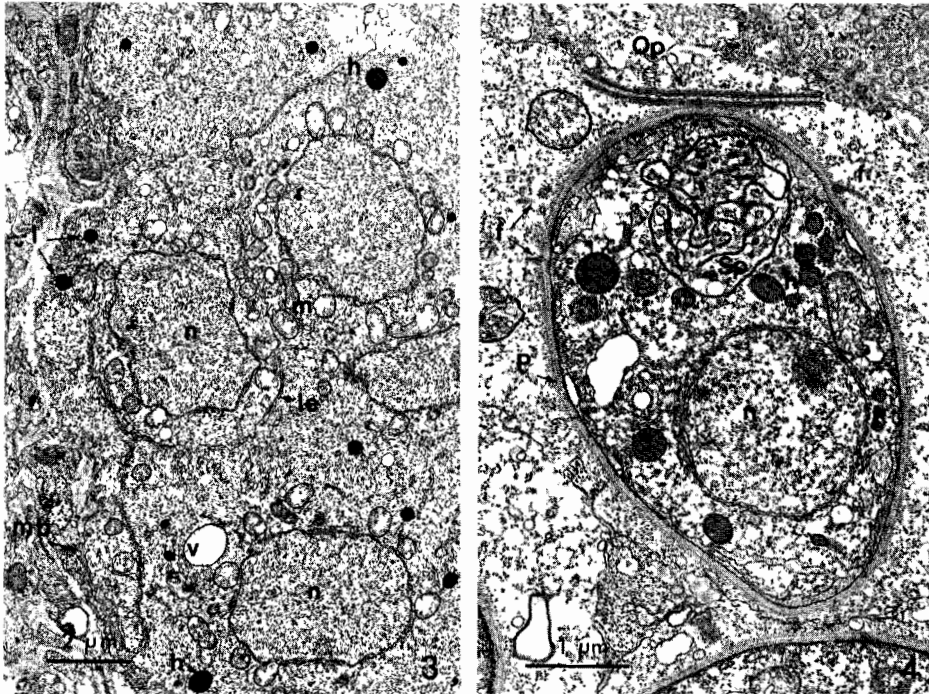


Fig. 3. The cytoplasm of sporonts.

Fig. 4. Spore of the parasite. For further explanation see text.

(S) (Fig. 2), averaging from 4 to 5 μm length and 2.5 to 4 μm width, are oblong and bear two long polar filamentous structures (ff, Fig. 2). At the electron microscope level, the cytoplasm of sporonts (Fig. 3) contains small vacuoles (v), lipidic inclusions (l) and haplosporosomes (h). Mitochondria (m) associated with ergastoplasm lamellae (le) are located around the nucleus (n). The sporont cell membrane includes invaginations in contact with host cells (mb). Spores (Fig. 4) present a plurilamellar wall (P), measuring 120 nm, onto which 2 to 4, or more (depending on the plane of sectioning) filaments (f) are inserted. The spore is closed by a flattened lid (Op) located at the apex. The sporoplasm encloses the typical organelles of haplosporidians (spherule, Sp; haplosporosomes, h). The morphological characteristics of this parasite of *Ostrea angasi* permit one to link it with the genus *Haplosporidium* (Balanosporida) (Ormières, 1980; Perkins and Van Banning, 1981). It shows great similarities with the *Haplosporidium* described among *O. edulis* (Van Banning, 1977; Pichot et al., 1979; Cahour et al., 1980; Bachère and Grizel, 1983). These observations, as well as the geographical localization of experimental rearing areas, suggest that it could be *H. armoricanum*. If this parasite is endemic for *O. edulis*, the *Haplosporidium* which we describe is, in turn, a pathogen of the Australian oyster. Scanning microscope examinations to specify the ornamentation of the spores, as well as serological comparisons, seem necessary to clarify the relative status of these different Haplosporidia.

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