



## Botryllid species (Tunicata, Ascidiacea) from the Mediterranean coast of Israel, with some considerations on the systematics of Botryllinae \*

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\* This work is dedicated to the memory of Professor Claude Monniot, the great French ascidiologist, who unexpectedly died on July 12 2008

### Abstract

Several botryllid colonies of the genus *Botrylloides* from the Mediterranean coast of Israel are analysed. Three species are described: *B. leachii*, which differs because of its smaller size, from specimens collected from other European seas and is considered a case of dwarfism due to the particular hydrological conditions of the study area; *B. anceps*, a species originally described from the Indo-Pacific region, which probably migrated from the Red Sea; and *Botrylloides israeliense*, a new species. The distinction between the genera *Botryllus* and *Botrylloides* is discussed, and the original Milne-Edwards diagnosis based on differences in the structure of the system is recognised as still valid. Lastly, the diagnostic features usually employed in specific taxonomic determinations of Botryllinae are analysed.

**Key words:** taxonomy, ascidians, *Botryllus*, *Botrylloides*, *Botrylloides israeliense* n. sp., Israel Mediterranean Sea

### Introduction

The botrylline fauna of the Eastern Mediterranean is poorly known (Pérès, 1958a, b; Koukouras et al., 1995) and certainly underestimated: proximity to the Suez Canal suggests that species may come from the Red Sea, and the ascidian population of the Gulf of Aqaba is not well-known (Pérès, 1962; Shenkar & Monniot, 2006). In this paper, three species of *Botrylloides* genus (subfamily Botryllinae) from the Mediterranean coast of Israel are described. The diagnosis of the genera *Botrylloides* and *Botryllus*, first based on system morphology, was changed by Ärnäck (1923) and Hartmeyer & Michaelsen (1928) who defined them according to the position (anterior or posterior) of the ovary with respect to the testis and the presence or absence of an incubatory pouch in which the embryo develops. This definition, accepted also by Van Name (1945) was again changed by Kott (1985) who attached importance to the only incubatory pouch. However these definitions were recognised as not being applicable to many botryllid species (Mukai, 1977; Okuyama & Saito, 2001a, b; 2002). In view of these different opinions, Monniot & Monniot (1987) did not consider it was necessary to keep the two genera, and viewed *Botrylloides* as a junior synonym of *Botryllus*. This decision was not accepted by Saito & Okuyama (2003) who believed that the two genera only used a single arrangement of gonads. In the present work, I suggest maintaining the two genera, going back to Milne-Edwards' original diagnosis (1841) based on differences in the structure of the system which was misinterpreted by later authors. In the last thirty years, several botryllid species from Japan have been described for the first time or re-described, from observations of colonies cultured in the open sea throughout the year. A great deal of biological information has thus been obtained (manner of sexual reproduction, colony specificity) (Saito & Okuyama, 2003). Clearly, all this is very important but not particularly useful for taxonomists who, working mainly on preserved material, need overall morphological characters. The validity of some of the latter are also analysed here.