

First record of reproduction by fragmentation in the genus *Marionina*

(Oligochaeta: Enchytraeidae)

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Abstract. Hermaphrodite enchytraeids usually breed sexually, but a few species can also multiply asexually by fragmentation (architomy). These species can alternate sexual breeding with asexual breeding by fragmentation. In Hungary, a *Marionina* species was found in the botanical garden of University of Szeged in 209, which is also able to reproduce asexually by architomy. No mature specimens of this species have been found so far. Fragmentation was observed rarely in these individuals and a strategy comparable to other fragmenting species is not known.

Key words. Enchytraeidae, *Marionina*, architomy, green houses.

Introduction

The asexual reproduction by fragmentation (architomy) in the family of Enchytraeidae (Annelida: Oligochaeta) was first published by BELL (1959). In the species *Enchytraeus fragmentosus* Bell, 1959, it was observed that the individuals divide into 3 to 11 fragments through a transverse division of the body. Thereafter the tail end of the presumptive anterior individual forms new posterior segments and the head end of the presumptive posterior individual forms a new anterior end. Later CHRISTENSEN defined two main types of transverse fission: (1) In paratomy separation of the new individuals is preceded by the formation of a so-called ‘budding’ or ‘fission’ zone, where a new anterior end and a new posterior end are formed before the individuals separate e.g. naidids or aelosomatids. (2) In architomy the worm suddenly divides into fragments caused by vigorous contractions of the muscles in the body wall. New individuals are formed from such fragments through subsequent formation of the new anterior ends. This simple fission followed by regeneration occurs in the family of Lumbriculidae, Naididae and also in Enchytraeidae (CHRISTENSEN 1984, 1994).

This method of reproduction is not unusual amongst these closely related taxa, however for enchytraeids it is certainly still not the most common method. Enchytraeids or ‘pot-worms’ has approximately 700 described valid species (DÓZSA-FARKAS, pers. comm.) but only 8 species of 3 genera are known to exhibit this phenomenon: *Buchholzia appendiculata* (Buchholz, 1862); *Cognettia sphagnetorum* Vejdovský, 1877; *C. glandulosa* Michaelsen, 1888; *Enchytraeus bigeminus* Nielsen & Christensen, 1963; *E. dudichi* Dózsa-Farkas, 1995; *E. fragmentosus* Bell, 1959; *E. japonensis* Nakamura, 1993 and *E. variatus* Bouguenec & Gianni, 1987. Moreover, these species have different strategies of fragmentation: some of them can alternate sexual breeding and multiplying by fragmentation depending on the diversity of the population (Table 1).