Transitional larval type of *Alcyonidium hirsutum* (Bryozoa, Gymnolaemata): From Van Beneden to the era of modern methods

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The XIX century is rightfully considered to be the golden age of natural sciences. That was the time when the major theories on the structure, development and evolution of living organisms appeared and many of them were based on comparative anatomical and embryological works. The earliest reports on bryozoan development date back to the mid-nineteenth century (Farre 1837; Nordmann 1839-1840; Hassall 1841, Reid 1845; Van Beneden 1845; Dalyell 1847, 1848). Major types of bryozoan larvae (cyphonautes, pseudocyphonautes, paracoronate and coronate larva) were described already at that time, although they were often mentioned as eggs, "gemmulae", or embryos.

The ctenostome genus *Alcyonidium* Lamouroux 1813 is unique among Bryozoa being comprised of the species with planktotrophic cyphonautes (*Alcyonidium albidum*, *A. mytili* sensu stricto Dalyell, 1848), species with lecitotrophic pseudocyphonautes (*A. duplex*), and paracoronate larva (*A. gelatinosum*, *A. hirsutum, A. mytili, A. polyoum, A. variegatum*). Thus, it is a valuable model for studying evolution of bryozoan larval types. Paracoronate larvae of *A. hirsutum* (former *Halodactyle vélu* Van Beneden, 1845) first mentioned as “oeufs” (eggs) in the 1845 paper of the famous Belgian zoologist Pierre-Joseph Van Beneden “*Recherches sur l'anatomie, la physiologie et le développement des Bryozoaires qui habitent la côte d'Ostende*”. It could be considered as a transitional larval type showing characters of both, cyphonautes and coronate larvae. Van Beneden described the appearance of that larvae and presented several drawings (Pl. V, fig.3-8), showing some “cyphonautes-like” features like a cone-shaped body with convex episphere bordering by the corona on the lower edge and a flattened hyposphere. Later on, the development and larval structure in various oviparous and larviparous species of *Alcyonidium* were studied (Prouho 1892; Barrois 1877; Harmer 1887; Seeliger 1906; Zschiesche 1909; more recently – D’Hondt 1972, 1973, 1975, 1977, 1979, 1983; Cadman & Ryland 1996a,b; Gruhl 2008, 2009) providing data for comparison. Still, although being one of the first described *Alcyonidium* larva, nothing is known about the internal structure of the larva of *A.hirsutum*. To fill this gap we applied TEM, SEM and immunocytochemitry methods to reconstruct its anatomy, that also allowed to support an idea that non-feeding larvae originated many times throughout bryozoan evolution.

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