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Checklist of the salps (Tunicata, Thaliacea) from the Western Caribbean Sea with a key for their identification and comments on other North Atlantic salps

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Abstract

In waters of the Northwestern Atlantic pelagic tunicates may contribute significantly to the plankton biomass; however, the regional information on the salp fauna is scarce and limited to restricted sectors. In the Caribbean Sea (CS) and the Gulf of Mexico (GOM) the composition of the salpid fauna is still poorly known and this group remains among the less studied zooplankton taxa in the Northwestern Tropical Atlantic. A revised checklist of the salp species recorded in the North Atlantic (NA, 0–40° N) is provided herein, including new information from the Western Caribbean. Zooplankton samples were collected during two cruises (March 2006, January 2007) within a depth range of 0–941 m. A total of 14 species were recorded in our samples, including new records for the CS and GOM area (*Cyclosalpa bakeri* Ritter 1905), for the CS (*Cyclosalpa affinis* (Chamisso, 1819)), and for the Western Caribbean (*Salpa maxima* Forskål, 1774). The number of species of salps known from the CS and GOM rose to 18. A key for the identification of the species recorded in the region is provided. Studies on the ecological role of salps in several sectors of the NA are scarce and deserve further attention.

Key words: pelagic tunicates, Yucatan Peninsula, North Atlantic, gelatinous zooplankton, taxonomy

Introduction

Pelagic tunicates, comprising appendicularians and thaliaceans (doliolids, pyrosomids and salps) are conspicuous members of the gelatinous zooplankton; they inhabit both coastal and oceanic waters. Their distribution and ecology have received more attention in the last decades as they feed closer to the base of the food webs than copepods do and can consume directly a wide size range of preys, thus confering them a significant role in marine ecosystems (Alldredge & Madin 1982; Andersen 1998; Sutherland *et al*. 2010). In the Northwestern Tropical Atlantic (NWTA), as in other tropical areas where gelatinous zooplankton is highly diverse, pelagic tunicates contribute significantly to the plankton biomass (Michel & Foyo 1976; Longhurst & Pauly 1987; Okolodkov 2003; Bernal *et al.* 2004). However, the regional information on the thaliaceans is scarce and limited to certain sectors of the NWTA (Esnal 1978; Esnal & Simone 1982; Suárez- Morales & Gasca 1996) as compared to appendicularians and other relatively well known gelatinous taxa (Segura-Puertas *et al.* 2003; Sanvicente-Añorve *et al*. 2007; Castellanos & Suárez-Morales 2009; Gasca 2009b; Pugh & Gasca 2009; Flores-Coto *et al*. 2010).

Salps are among the most diverse groups of pelagic tunicates (Van Soest 1998) and, similarly to other thaliaceans, they can form seasonal blooms or swarms. Relatively few species of salps account for most of the reported blooms, related to seasonal increases of local productivity at mid and high latitudes (Madin *et al.* 2006; Deibel & Paffenhofer 2009). Blooms occur more intermittently in tropical-subtropical systems (Madin *et al.* 1996; Hereu *et al.* 2010).

The order Salpida comprises one family (Salpidae) and two subfamilies (Salpinae Yount 1954 and Cyclosalpinae Yount 1954), with eleven and two genera, respectively. In a comprehensive biogeographical survey of the salps (Van Soest 1975a, 1998) no data were included from most of the CS and the GOM. The salpid fauna of these two

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