



Some ascidians from Indonesian marine lakes (Raja Ampat Islands, West Papua)

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Abstract

A small collection of ascidians from Indonesian marine lakes in the Raja Ampat Islands, West Papua province, was made by biologists from the university of California, Merced and Coral Reef Research Foundation, Palau during a marine lakes macro-invertebrate diversity survey. It comprises 19 species. Some of them previously described show some modifications of their anatomical characters which may be due to a lower salinity and pH of the lake water or perhaps to evolution *in situ*. Some specimens (Aplousobranchia) could not be assigned to a species, the samples being too small, the larvae absent, and a possible modification in the number or shape of the calcareous spicules may occur. They are nevertheless described.

Key words: Ascidians, marine lakes, Indonesia

Introduction

The ascidians described here were collected from several marine lakes from the Raja Ampat Islands, West Papua province, Indonesia, an area of raised karst islands. The name Raja Ampat refers to "Four Kings", or four main islands of the group. The collectors investigated marine lakes on three of these islands: Gam, Mansuar and Fam.

Marine lakes are bodies of sea water surrounded by land but differ according to the extent of connections and exchange with the surrounding ocean water, via either tunnels or cracks and seeping water (Dawson et al. 2009). Most of the lakes sampled in Raja Ampat are connected to the lagoon by large tunnels and are relatively shallow. Despite this, the water chemistry of even the well-connected marine lakes differs from the surrounding ocean, with slightly lower salinity (~0.5–1.0 ppt lower) and pH (~0.3–0.5 units lower). Mansuar lake is the only isolated (meromictic) lake sampled and its salinity (~ 28.5 ppt) and pH (~7.0) are significantly lower than the surrounding ocean.

Some of the samples from Raja Ampat lakes have not been identified to the species level, (although described) for several reasons: a single or only a few specimens were available, no striking anatomical characters or the absence of larvae. In addition, the morphology, pigmentation and spicule shape may be affected by the peculiar chemical composition of the marine lake superficial water. Even with large exchange with the surrounding ocean, the surface water receives strong rains and its pH and salinity lower. Few ascidians survive with difficulty in brackish water but their tolerance limit is not yet enough studied. Even a temporary lowering of salinity may modify the metabolism and influence the growth, reproduction, and pigmentation or the spicule calcification (Vazquez & Young 2000, Thivagarajan & Qian 2003, Dijkstra et al. 2008). As an alternative, rapid evolution has been reported in other marine lake taxa (Dawson & Hammer 2005).