

**Title: Bacterial profile shifts in Brazilian endemic coral *Siderastrea stellata* with White Pox disease**

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**Abstract:**

Coral reefs harbor the greatest biodiversity in marine ecosystems but are facing threats on local and global scale. Global warming and ocean acidification are large-scale impacts which compromise the coral and reef-associated organisms. Usually, local threats are related to anthropogenic impacts such as sewage releases, nutrient loading and eutrophication from agrochemicals, sedimentation, coral mining, overfishing and tourist activities. Coral diseases are amongst the most critical causes of reef degradation over the past decades. White Pox disease, also known as acroporid serratoses (APS), was originally described in *Acropora palmata* from Caribbean reefs. This is the first report of the occurrence of White Pox disease in coral other than *Acropora palmata*. The bacterial communities of healthy and White Pox-affected coral tissues of *Siderastrea stellata* Verrill, 1868, from the "Parque Natural Marinho do Recife de Fora" (16°25'S, 38°59'W), were evaluated using 16S rDNA PCR/DGGE fingerprinting. The colonies affected by White Pox disease were positive for *Serratia marcescens*, the etiological agent of White Pox disease, specific PCR A linear correlation was performed to access the relationship between colony density and the proportion of colonies showing White Pox symptoms, using photoquadrants with more than 2 colonies in the image. A significant prevalence of turf algae on dead spots of *S. stellata* colonies affected by White Pox disease was also detected. Our data support the hypothesis that White Pox on *S. stellata* colonies is a bacterial disease caused by *Serratia marcescens* but also demonstrates that this is not a specific pathogen of *Acropora palmata*. Additionally, the results have also shown that the native bacterial community profiles of the diseased colonies suffered a consistent impact.

**Keywords:** Enterobacteria, *Serratia marcescens*, coral disease, microbial community, White Pox disease, *Siderastrea stellata*.

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