With the potential to cause rapid and large-scale reef decline, coral diseases represent a prominent global stressor to coral reef ecosystems (Aronson et al., 2003; Harvell et al., 2007). The Western Indian Ocean (WIO) is not spared from coral diseases. Observation of coral diseases in the WIO dates back to 1991 when the Skeletal Eroding Band (SEB) coral disease caused by the pathogenic protozoan, *Halofolliculina corallasia*, was reported around Mauritius Island (Antonius (1991) in Antonius and Lipscomb, 2000). A study by Goreau in 1998 (cited in Hilbertz and Goreau, 2002) observed Porites Line Disease in massive *Porites* sp. in 1997 in Seychelles. In Zanzibar, *Vibrio coralyticus* was isolated from diseased *Pocillopora damicornis* (Ben-Haim and Rosenberg, 2002). White Syndrome Disease (WSD) was reported, at prevalence levels below 1.5%, in the south-west reef systems of Madagascar (Sheridan et al., 2014). Studies conducted around Reunion Island, Mayotte, and South Africa revealed the occurrence of six coral diseases: Growth Anomalies, Black Band Disease, Skeletal Eroding Band, WSD, Pink Line Syndrome and *Porites* White Patch Syndrome (Séré et al., 2015). In the same study, spatial heterogeneity in disease prevalence among the sites was also observed, where Reunion Island had the highest disease prevalence rate (7.5 ± 2.2%) compared to South Africa (3.9 ± 0.8%) and Mayotte (2.7 ± 0.3%) (Séré et al., 2015). It was further reported that WSD and Black Band Disease were more common, and *Porites* and *Acropora* were the most disease-vulnerable genera. WSD, amongst other coral diseases such as Brown Band, SEB, Black Band and Ulcerative White Spot, was also reported as one of the most prevalent coral diseases among seven islands of the Maldivian Archipelago where the overall estimated disease prevalence was around 1.51% (Montano et al., 2015). More recently, Bhagooli et al. (2017) observed Brown Band, SEB, White Band, White Plague, Growth Anomalies, and Pink Pigmentation Response in corals in the lagoonal area of Mauritius.

The only coral disease observations from the poorly studied Saya de Malha region revealed two types of coral diseases: one isolated Black Band case and the highly abundant Porites Line Disease (PLD) (Hilbertz and Goreau, 2002) at the northern region on Ritchie bank and at depths of less than 20 m. The same PLD-affected corals that survived the 1998 bleaching event were found dead in 2002, most probably as a result of the disease (Hilbertz and Goreau, 2002). Although being remote and distant from terrestrial influences, the submerged Saya de Malha bank located in the WIO holds evidence of coral diseases and requires further studies.

The second leg of the EAF-Nansen research survey cruise in May 2018 at the Saya de Malha bank provided an opportunity to use the Video-Assisted Multi Sampler (VAMS) to collect coral samples. At location 39 (10° 22.6501'S; 62° 12.362035'E) on the Saya de Malha bank, WSD was observed on *Acropora* sp. which was collected (Fig. 1) from a depth of 30 m. Such environments are characterised by low coral...
cover and possibly reduced frequency of warm temperature anomalies. Ramah et al. (2021) indicated that at location 39, the general live hard coral cover was estimated at 9-33%. The corals observed at location 39 included Acropora, Porites, Lobophyllia, Goniastrea and Favites species. WSD in Acropora sp. was observed only among the collected coral samples. It is noteworthy that high coral cover (>50%) and warm temperatures are two important prerequisites for outbreaks of WSD. Depth is also an important factor in the distribution of WSD, with a reduction of 89% and 43% in live coral cover at 5 m and 20 m, respectively, associated with WSD (Hobbs et al., 2015). WSD on Acropora corals have been commonly reported from depth ranges of 5 m (Hobbs et al., 2015; Hobbs and Frisch, 2010), 4-6 m (Roff et al., 2011), and 20 m (Hobbs et al., 2015).

It is also worth highlighting that corallivorous gastropods generally feed on Acroporids in large masses (high density aggregations) (Bruckner et al., 2017; Kaullysing et al., 2017; Kaullysing et al., 2020). For instance, the corallivorous gastropods Drupella are attracted to other Drupella individuals forming an aggregation to feed over corals (Cumming, 2009a; 2009b). However, during this survey, not a single corallivorous individual was collected and/or observed in the vicinity of the coral. Moreover, it has been reported that corallivorous gastropods occur in lower densities in deeper waters (6-9 m) (Scott et al., 2017). Thus, the possibility of the white patches being those of predation scars was ruled out.

WSD appears to be quite common in the WIO (Sheridan et al., 2014; Séré et al., 2015; Montano et al., 2015). WSDs are a group of coral diseases characterised by diffuse patterns of tissue loss that expose the underlying bare white coral skeleton (Raymundo et al., 2008; Roff et al., 2011). The lesion boundaries of WSD can be linear, annular or irregular, and the coral tissue bordering the lesion can sometimes become pigmented (Roff et al., 2011; Beeden et al., 2008). In Acropora corals, the disease can be observed originating at the base of coral branches that are found in the middle of the colony (Roff et al., 2011). The rate of tissue loss caused by this disease has been recorded to range from 0 to 1,146 cm² per week (Roff et al., 2011). The bacterium Vibrio owensii has been isolated as the main pathogenic agent of WSD in Monitpora capitata (Ushijima et al., 2012). WSDs have been observed to progress at a rate not exceeding 20 mm per day. The most common host of this disease is Acropora corals (Raymundo et al., 2008; Roff et al., 2011), but it has also been observed in Turbinaria (Dalton et al., 2009). WSDs have been recorded in the reefs of the Indo-Pacific (Roff et al., 2011; Dalton et al., 2010), Caribbean (Weil and Hooten, 2008), Pacific Ocean (Aeby et al., 2010). The prevalence of WSD is moderately high, usually not exceeding 10% (Roff et al., 2011). The prevalence of WSD is usually higher in winter months (Roff et al., 2011). However, Aeby et al. (2010) reported no influence of season on the prevalence of WSD. Bruno et al. (2004) also reported an increase in the prevalence of WSDs in densely populated coral communities with increasing temperatures.

This first observation of WSD on the branching Acropora coral at a depth of 30 m at the southern Saya de Malha bank is indicative of the possibility of more infectious biotic stressors to the deep and ‘pristine’ coral reef ecosystem at that bank. Further in-depth characterisation and distribution studies of prevalent diseases and inter-species susceptibility to diseases are warranted to thoroughly understand the impacts of coral diseases at the Saya de Malha bank, for enhanced and adaptive
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Reference


