

# A Description of *Acropora* sp. 1 in the Mombasa Lagoon in Kenya – A New Species or a Potential Hybrid?

SANGEETA MANGUBHAI

School of Environmental Science and Management, Southern Cross University, P.O. Box 157, Lismore, NSW 2480, Australia

## INTRODUCTION

*Acropora* species are taxonomically complex because they are highly polymorphic and have the potential to cross-fertilize and form hybrids that may be competent to settle, undergo metamorphosis and survive for up to 3.5 years (Willis et al. 1997). In Kenya *A. valida*, *A. secale* and *A. lutkeni* are, at times, remarkably similar in the field and can be difficult to separate. Mangubhai & Harrison (2006) highlighted the difficulties in separating *A. valida* from *A. secale* in the Mombasa lagoon due to the presence of a large number of immediate ‘morphs’ with characteristics of both species. In 2004 skeletons were collected of *A. valida*, *A. secale*, *A. lutkeni* and any corals showing characteristics of these 3 species for comparison to specimens at the Museum of Tropical Queensland in Australia. *Acropora valida* and *A. secale* from the Mombasa lagoon were found to be generally more sturdy (i.e. thicker and longer branches), while *A. lutkeni* was less sturdy and radial corallites were more ‘organised’ compared to specimens from other parts of the Western Indian Ocean and the Asia-Pacific region.

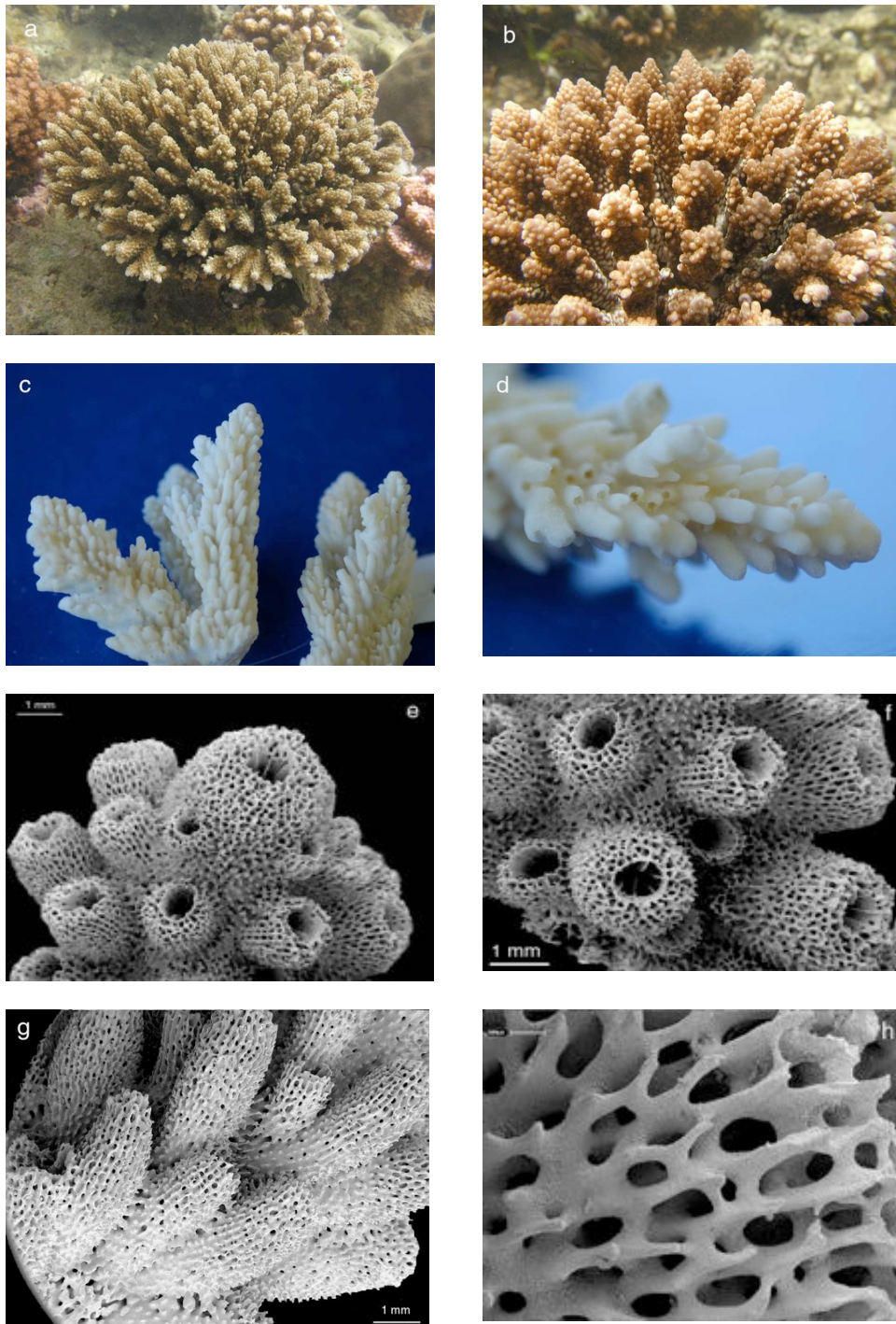
A fourth putative ‘species’ was identified, *Acropora* sp.1, which has tentatively been placed in the *Acropora nasuta* group (Wallace 1999) because it appears to share skeletal characteristics with all 3 species. Field and skeletal characteristics are provided

below. The potential for *Acropora* sp.1 to be a more ‘extreme’ form of *A. secale* or *A. valida* or a more ‘conservative’ form of *A. lutkeni* cannot be overlooked, and there is also the possibility that hybridisation may be occurring between the different species. Detailed morphometric and genetic studies, and the further narrowing of spawning times, may resolve the taxonomic status of this putative ‘species’ at a later date.

**Field:** Colonies are mostly brown with brown or cream axial corallites (Fig. 1a-b). Towards the base of branches radial corallites become white giving them a scale-like appearance. Branches are rarely tapering, with branch thickness mostly made up by the radial corallites. However, these skeletal characters also occur in a small number of *A. valida*, *A. secale* and in *A. lutkeni*, making field identification of *Acropora* sp.1 difficult.

**Skeleton:** Colonies are corymbose or caespitocorymbose with a central or side attachment, with branches of 12-22 mm diameter and up to 140 mm in length. Axial corallites outer diameter ranges from 2.3-3.0 mm and inner diameter from 0.6-1.0 mm. Radial corallites are touching and are a mixture of sizes with fairly thick walls. The branch tip (10-20 mm) has tubular radial corallites with round to nariform openings, sometimes alternating with smaller sub-immersed corallites so that it bears a strong

Obura, D.O., Tamelander, J., & Linden, O. (Eds) (2008). *Ten years after bleaching - facing the consequences of climate change in the Indian Ocean. CORDIO Status Report 2008. Coastal Oceans Research and Development in the Indian Ocean/Sida-SAREC. Mombasa.* <http://www.cordioea.org>



**Figure 1:** *Acropora* sp.1. Live colony (a-b), portion of colony (c-d); electron micrograph showing axial and radial corallites (e-g) and coenosteum on radial corallites (h).

resemblance to *A. secale*. However, below about 20 mm, radial corallites can become strongly appressed so that the remaining portion of the branch more closely resembles *A. valida*. The presence of secondary sub-branches and long tubular radial corallites of different lengths gives the branches a sturdy robust appearance that resembles *A. lutkeni*.

## REFERENCES

Mangubhai S, Harrison PL (2006) Seasonal patterns of coral reproduction on equatorial reefs in

Mombasa, Kenya. Proceedings of the 10th International Coral Reef Symposium p106-114.

Wallace CC (1999) Staghorn corals of the World: a revision of the coral genus *Acropora*. CSIRO, Collingwood pp421.

Willis BL, Babcock RC, Harrison PL, Wallace CC (1997) Experimental hybridization and breeding incompatibilities within the mating systems of mass spawning reef corals. *Coral Reefs* 16:S53-S65.

