

OF DEAD MAN'S FINGERS, CORD WEED AND HANGING WRACK

Five common brown intertidal seaweeds of the Cape Peninsula.

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In this, the second in the series on common intertidal seaweeds of the Cape Peninsula, we look at the brown seaweeds common to our rocky shores, with the exception of kelp, which will be covered in the next issue of *Veld & Flora*. Unlike the green seaweeds mentioned in the previous issue, these brown seaweeds are generally slower growing and are less tolerant of salinity and temperature extremes and thus more prone to desiccation stress. They therefore tend to occur lower down on the shore than the green seaweeds.

The usually yellowish-brown colour with grey or blackish tinges of the brown seaweeds comes from the presence of chlorophyll a and c, as well as an additional xanthophyll pigment called fucoxanthin. Some however, are totally black and are often mistaken for red seaweeds, but a good way to distinguish between brown and red seaweeds in the field is to perform a simple test. Take the seaweeds and rub them onto the back of your hand. If your hand is full of mucus after about ten seconds, it is probably a brown seaweed, as they tend to be gooey and filled with lots of mucilage.

Economic uses

A characteristic feature of brown seaweed is that their cell walls are made of cellulose strengthened by calcium alginate. Alginate is a substance of considerable economic importance as it is used as a gelling and emulsifying agent in a number of industries. This makes brown seaweed economically important as their alginate extracts are used to make water-based products thicker, creamier and more stable over extreme differences in temperature, pH and time. Products that contain alginate extracts include brownie mix, frozen foods, desserts, relishes, salad dressing, sauces, gravies and even beer foam. Alginates also prevent ice crystals from forming in ice cream.

Surprisingly though, at present it is only the giant brown seaweeds known as kelp* that are harvested commercially for alginate extraction. Perhaps it is because no other group of brown seaweed occurs in large enough densities to be commercially viable.



CAPE CORD-WEED

Chordariopsis capensis or Cape cord-weed is a stringy, limp seaweed often abundant in sheltered high-shore and mid-shore tidal pools, where it occurs in a flaccid untidy mass that easily becomes dislodged by any significant wave action.

DEAD-MAN'S FINGERS

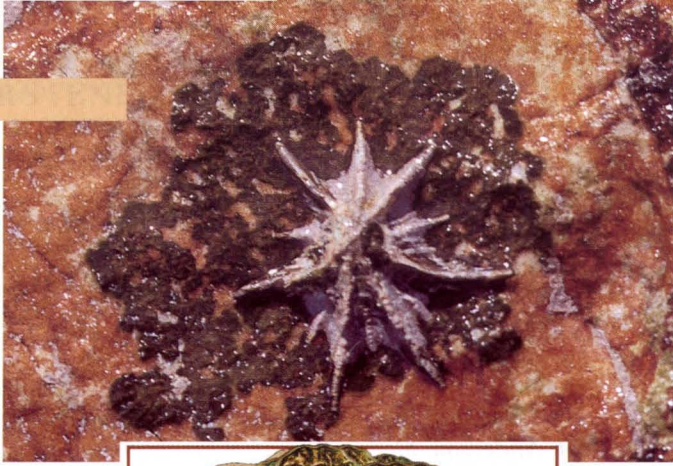
Splachnidium rugosum, aptly called dead-man's fingers, has spotted, elongated, cylindrical branches that resemble withered and callused fingers. The branches, sometimes also berry-like, are filled with clear viscous mucilage. It is this mucus that enables *S. rugosum* to withstand a high degree of desiccation within the mid-intertidal zone when it becomes exposed during low tide of spring tides. Here *Splachnidium rugosum* is growing with the green seaweed *Ulva*.



RALFSIA

Ralfsia verrucosa is an olive brown to khaki encrusting brown seaweed that occurs abundantly in low-shore tidal pools. Here it often forms large, flat, smooth expanses giving the impression that someone has accidentally dropped khaki paint into the pools.

Ralfsia verrucosa can occur in great abundance because of its relatively fast growth rate and also because it produces a chemical which seems to deter most grazers. Oddly though, the periwinkle, *Oxystele tigrina*, and the long-spined limpet, *Scutellastra longicosta*, just love eating *Ralfsia* - so much so that *Scutellastra longicosta* even tends gardens of this brown seaweed, as seen in this photo.



WHAT DOES THAT MEAN?

endemic occurring nowhere else in the world.

holdfast the root-like attachment of seaweeds.

intertidal between the high tide and the low tide level.

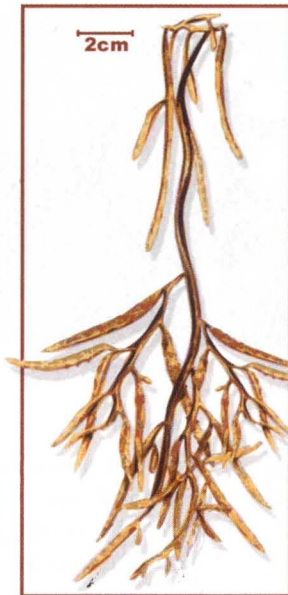
kelp giant brown seaweeds that dominate the subtidal area.

spring tide the tide occurring every two weeks during new and full moon phases. At this time, low tides are at their lowest, and high tides at their highest.

subtidal below the lowest level on the shore reached by the tides.

HANGING WRACK

The hanging wrack, *Bifurcaria brassicaeformis*, commonly dominates that part of the lower shore just above the subtidal zone where it forms extensive dense mats of long, tough, cylindrical branches looking very much like an unmowed lawn. This seaweed achieves dominance of the lower shore by rhizomatous spreading of its holdfast. Some local scientists have recorded individual seaweed bases measuring as much as 1 m in diameter. Hanging wrack is endemic to South Africa, having a very restricted distribution that occurs only from Cape Agulhas to Sea Point in Cape Town.



LONG-LEAFED SARGASSUM

The long-leafed sargassum, *Anthophycus longifolius*, is a somewhat twisted, robust and knobby seaweed that can easily dominate large areas of low-shore tidal pools and the immediate subtidal area. The blades of this species are characteristically toothy with those blades near the surface bearing little bladders in their axils. These bladders keep the seaweed afloat enabling it to maximize its photosynthetic abilities. *Anthophycus longifolius* is one of the largest non-kelp brown seaweeds, often attaining lengths in excess of 1 m. It is the sole species in the genus *Anthophycus* and this genus is known only from southern Africa. ♀



Acknowledgement

All artwork in the seaweed series has been adapted from paintings by Margo Branch in *The Living Shores of Southern Africa* by George and Margo Branch.

Further reading

Branch, George & Margo. 1981. *The Living shores of southern Africa*. Struik, Cape Town.
Branch, G.M., C.L. Griffiths, M.L. Branch and L.E. Beckley. 1994. *Two oceans: a guide to the marine life of southern Africa*. David Philip, Cape Town.

Contact addresses for the authors were given in the September issue of *Veld & Flora* on page 125.

*The kelps will be covered in the next issue.