

A collection of deep-water marine plants from Rottnest Island

by

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ABSTRACT

Deep water dredging around Rottnest Island allowed the collection of marine benthic flora from below usual diving depths. Identifications of some 52 species were from the following Divisions: Chlorophyta (2); Heterokontophyta (11), Rhodophyta (34), and Magnoliophyta (5).

These species were largely represented in the shallower Rottnest marine flora. Macroalgal species newly recorded for Western Australia are *Chlorodesmis baculifera*, *Dictyopteris gracilis* and *Rhabdonia clavigera*. Species newly recorded for Rottnest Island are *Herposiphonia versicolor*, *Herposiphonia secunda*, *Osmundaria prolifera*, and *Callophyllis rangiferina*.

INTRODUCTION

Rottnest Island has played a significant role in the recognition of the Western Australian marine benthic flora. Its pristine conditions, abundance of macroalgal habitats and seagrass beds, and close proximity to Perth have ensured its popularity as a collecting location. Important historical collections include those made by W.H. Harvey during the middle of the nineteenth century, with many of these specimens forming the basis of his five volume 'Phycologia Australica' (Harvey 1858–63)

The marine flora of Rottnest Island was catalogued by Huisman and Walker (1990). This paper compiles the flora collected by dredging deeper habitats during the 1996 Marine Biological Workshop.

MATERIALS AND METHODS

Material was dredged from Rottnest Island, using the Fisheries WA vessel, RV Flinders. Details of the dredge sites are given in Table 1.

The taxonomic sequence is: Division Chlorophyta, Division Heterokontophyta, Division Rhodophyta, Division Magnoliophyta. Within each division the classes, orders, genera and then species are arranged alphabetically. Detailed information (recent reference, type locality, distribution) is given for species newly recorded for Western Australia or where it is not available in previous catalogues, in which case the reader is referred to publications dealing with Rottnest

Table 1. Dredge site details for algal and seagrass collections, January 1996.

Station No.	Depth (m)	Trawl start way-point	Direction of trawl	Habitat
Station 1	22	31° 59.69 115° 37.14	West	Sand, seagrass, algae
Station 2	25	31° 58.10 115° 31.30	East	limestone rubble, algae
Station 3	32	31° 58.04 115° 29.65	East-Nth East	sand, algae, limestone rubble
Station 4	44	31° 57.12 115° 59.03	South	Limestone rubble, seagrass, algae
Station 5	40	31° 55.08 115° 28.34	West-Sth West	Limestone rubble, seagrass, algae
Station 9	14	32° 01.79 115° 34.63	South-West	Limestone rubble, algae
Station 10	27	32° 02.42 115° 32.47	West-Sth West	Sand
Station 11	33	32° 02.94 115° 30.35	East-Nth East	Limestone rubble, algae
Station 12	38	32° 03.07 115° 28.55	East-Nth East	Limestone rubble, algae
Station 13	42	32° 03.27 115° 27.30	East-Nth East	Limestone rubble, algae

Island (Huisman & Walker, 1990) or the Houtman Abrolhos (Huisman, 1997). 'UWA' is the herbarium of the University of Western Australia.

Division Chlorophyta (Green Algae)

Class Bryopsidophyceae

Order Bryopsidales

Chlorodesmis baculifera (J. Agardh) Ducker 1966: 245.

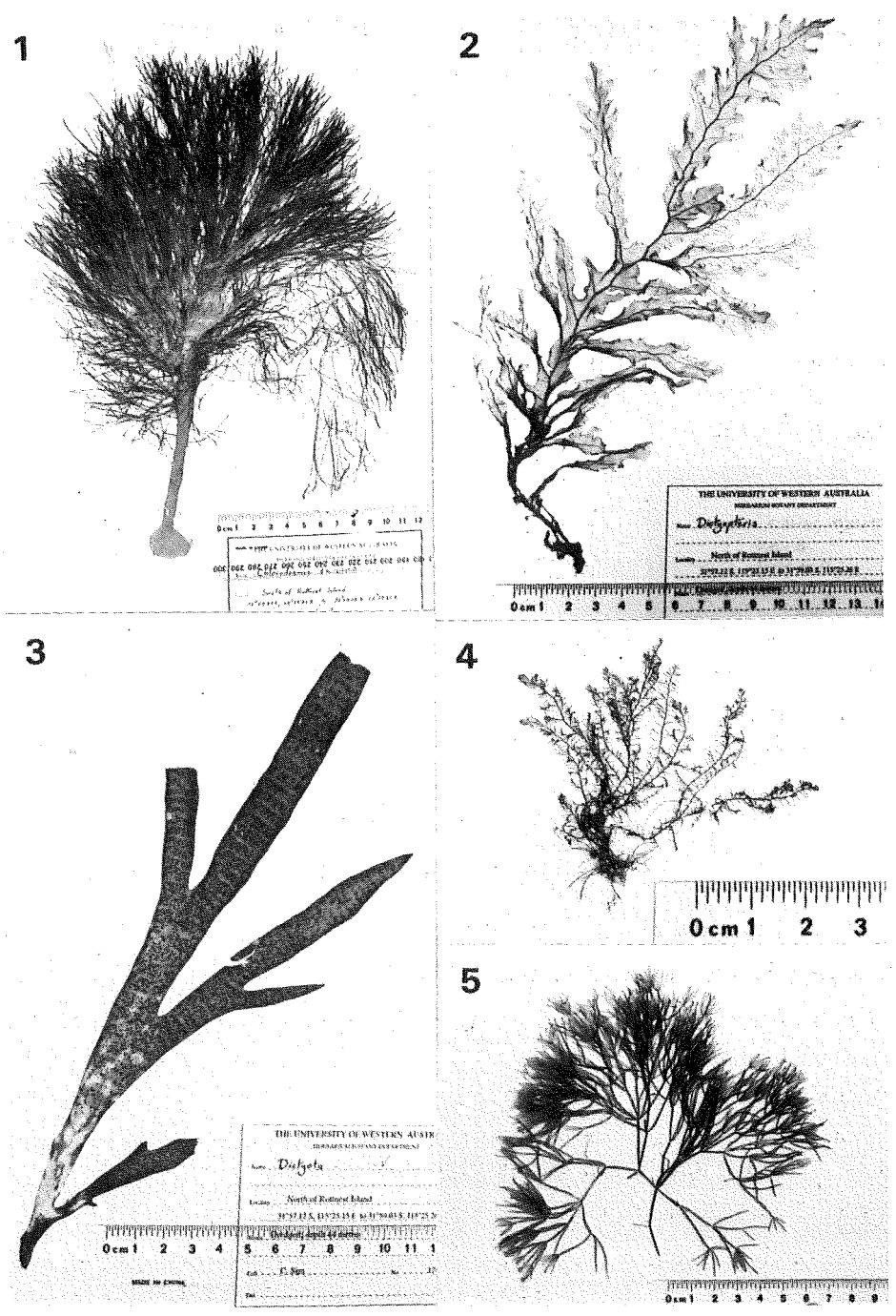
References: Womersley 1984: 242–244, figs 81B, 82C,D. Ducker 1967(66): 155–157, pls 10,11.

Type Locality: Port Phillip Heads, Victoria.

Distribution: From Rottnest Island, Western Australia, and Waterloo Bay (Elliston), South Australia to Waratah Bay, Victoria and the north coast of Tasmania.

Specimen: South of Rottnest I. Dredged from 42 m depth (C. Sim, 16.i.1996; UWA).

Remarks: This is the first record of *Chlorodesmis baculifera* from Western Australia. The single Rottnest Island specimen (Figure 1) is particularly robust, being 27 cm in height with an 8 cm stipe, somewhat larger than the reported upper thallus dimensions for this species [to 16 cm in height with a 5 cm stipe (Womersley 1984, Ducker 1967)]. In all other features (including filament diameter and presence of constrictions on only one branch of a dichotomy), however, the present specimen is in agreeance with *C. baculifera*.



Figures 1-5. Some algal novelties from Rottnest Island. 1, *Chlorodesmis baculifera* – a new record for Western Australia; 2, *Dictyopteris gracilis* – a new record for Western Australia; 3, *Dictyota naevosa* – with oogonia arranged in transverse bands; 4, *Herposiphonia versicolor* – a new record for Rottnest Island; 5, *Rhabdonia clavigera* – a new record for Western Australia.

Class Cladophorophyceae**Order Cladophorales**

Cladophora lehmanniana (Lindenburg) Kützing.

For details see Huisman & Walker (1990, p. 357).

Specimen: North of Rottnest I. Dredged from 44 m depth (C. Sim, 15.i.1996; UWA).

Division Heterokontophyta**Class Phaeophyceae (Brown Algae)****Order Dictyotales**

Dictyopteris gracilis Womersley 1987: 224.

Reference: Womersley 1987: 224–226, figs 76B, 77H–M.

Type Locality: D'Estrees Bay, Kangaroo Island, South Australia.

Distribution: Known from the Houtman Abrolhos and Rottnest Island, Western Australia, and from Investigator Strait and the lower Gulfs in South Australia.

Specimen: North of Rottnest I. Dredged from 44 m depth (C. Sim, 15.i.1996; UWA).
Figure 2

Remarks: This is the first record of *Dictyopteris gracilis* from Western Australia. It is a distinctive species, characterised by its monostromatic wings and lack of lateral veins.

Dictyopteris muelleri (Sonder) Reinbold.

For details see Huisman & Walker (1990, p. 375).

Specimen: North of Rottnest I. Dredged from 40 m depth (C. Sim, 15.i.1996; UWA).

Dictyota furcellata (C. Agardh) Greville

For details see Huisman & Walker (1990, p. 374).

Specimen: North of Rottnest I. Dredged from 44 m depth (C. Sim, 15.i.1996; UWA).

Dictyota naevosa (Suhr) Montagne

For details see Huisman & Walker (1990, p. 374).

Specimens: North of Rottnest I. Dredged from 40 m depth (C. Sim, 15.i.1996; UWA) and from 44 m depth (C. Sim, 15.i.1996; UWA).

Remarks: This is apparently the first recorded sexual specimen of this species (Figure 3).

Oogonia are borne in clusters on both sides of the thallus, with the clusters arranged in vague transverse bands 3–4 mm broad and separated by sterile zones 1–1.5 mm broad.

Lobophora variegata (Lamouroux) Womersley ex Oliveira.

For details see Huisman & Walker (1990, p. 376).

Specimen: South of Rottneest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Padina sanctae-crucis Børgesen.

For details see Huisman & Walker (1990, p. 377).

Specimen: South of Rottneest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Scoresbyella profunda Womersley

For details see Huisman & Walker (1990, p. 378)

Specimen: North of Rottneest I. Dredged from 40 m depth (*C. Sim*, 15.i.1996; UWA).

Order Sporochneales

Austronereia australis (Harvey) Womersley

For details see Huisman & Walker (1990, p. 379)

Specimen: South of Rottneest I. Dredged from 27 m depth (*C. Sim*, 16.i.1996; UWA).

Encyothalia cliftonii Harvey

For details see Huisman & Walker (1990, p. 379)

Specimen: South of Rottneest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Order Fucales

Sargassum distichum Sonder

For details see Huisman & Walker (1990, p. 384).

Specimen: South of Rottneest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Order Sphacelariales

Sphacelaria rigidula Kützting

For details see Huisman & Walker (1990, p. 373).

Specimen: North of Rottneest I. Dredged from 32 m depth (*C. Sim*, 15.i.1996; UWA).

Division Rhodophyta (Red Algae)**Class Florideophyceae****Order Bonnemaisoniales*****Delisea pulchra*** (Greville) Montagne

For details see Huisman & Walker (1990, p. 399).

Specimen: South of Rottnest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Order Ceramiales***Cliftonaea pectinata*** (Harvey) Harvey

For details see Huisman & Walker (1990, p. 432).

Specimens: North of Rottnest I. Dredged from 22 m and 32 m depth (*C. Sim*, 15.i.1996, UWA).

Dasyclonium flaccidum (Harvey) Kylin

For details see Huisman & Walker (1990, p. 433).

Specimen: North of Rottnest I. Dredged from 44 m depth (*C. Sim*, 15.i.1996; UWA).

Dictyomenia sonderi Harvey

For details see Huisman & Walker (1990, p.434, as *Dictyomenia*).

Specimen: South of Rottnest I. Dredged from 14 m and 27 m depth (*C. Sim*, 16.i.1996; UWA).

Dictyomenia tridens (Mertens ex Turner) Greville

For details see Huisman & Walker (1990, p. 434, as *Dictyomenia*).

Specimens: South of Rottnest I. Dredged from 14 m and 27 m depth (*C. Sim*, 16.i.1996; UWA).

Ditria expleta Huisman

For details see Huisman (1997, p. 204).

Specimens: South of Rottnest I. On *Lobophora variegata* dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Gattya pinella Harvey

For details see Huisman & Walker (1990, p. 423).

Specimen: South of Rottneest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Haraldiophyllum erosum (Harvey) Millar & Huisman

For details see Huisman (1997, p. 201).

Specimen: North of Rottneest I. Dredged from 44 m depth (*C. Sim*, 15.i.1996; UWA).

Remarks: Previously recorded from Rottneest Island as *Myriogramme erosa* (Harvey) Kylin (Huisman & Walker 1990, p. 431). The generic placement was clarified by Millar & Huisman (1996).

Herposiphonia secunda (C. Agardh) Ambronn

For details see Huisman (1997, p.204)

Specimen: South of Rottneest I. Dredged from 27 m depth (*C. Sim*, 16.i.1996; UWA).

Remarks: Specimen epiphytic on *Sargassum* sp.

Herposiphonia versicolor (J. Hooker & Harvey) Falkenberg 1901: 315.

Polysiphonia versicolor J.Hooker & Harvey in Harvey 1847 [1847–1849]: 48.

Type Locality: Tasmania.

Distribution: Rottneest Island, Western Australia, around southern Australia to Tasmania.

Specimen: North of Rottneest I. Dredged from 32 m depth (*C. Sim*, 15.i.1996; UWA).

Remarks: The present specimens (Figure 4) appear identical to those described in Harvey (1847) and differ from the apparently closely related *Herposiphonia rostrata* (Sonder) Reinbold in having fewer pericentral cells. The Australian species of *Herposiphonia* are in need of revision.

Kuetzingia canaliculata (Greville) Sonder

For details see Huisman & Walker (1990, p. 435).

Specimen: South of Rottneest I. Dredged from 42 m depth (*C. Sim*, 16.I.1996; UWA).

Osmundaria prolifera Lamouroux

Reference: Norris (1991).

Type Locality: Western Australia.

Distribution: South-west Western Australia to Kangaroo Island, South Australia.

Specimens: North of Rottneest I. Dredged from 25 m depth (*C. Sim*, 15.i.1996; UWA). South of Rottneest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Remarks: *Osmundaria prolifera* is relatively common in south-western Australia, but this represents the first record of this species from Rottneest Island.

Order Corallinales

Amphiroa anceps (Lamarck) Decaisne

For details see Huisman (1997, p. 208).

Specimen: South of Rottneest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Halptilon roseum (Lamarck) Garbary & Johansen

For details see Huisman & Walker (1990, p. 411).

Specimen: North of Rottneest I. Dredged from 40 m depth (*C. Sim*, 15.i.1996; UWA).

Metamastophora flabellata (Sonder) Setchell

For details see Huisman (1997, p. 210).

Specimens: North of Rottneest I. Dredged from 40 m depth depth (*C. Sim*, 15.i.1996; UWA).
South of Rottneest Island. Dredged from 42m depth (*C. Sim*, 16.i.1996; UWA).

Order Gigartinales

Areschougia ligulata Harvey ex. J. Agardh

For details see Huisman & Walker (1990, p. 400).

Specimens: North of Rottneest I. Dredged from 40 m depth depth (*C. Sim*, 15.i.1996; UWA).
South of Rottneest Island. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Callophycus dorsifer (C. Agardh) Silva

For details see Huisman & Walker (1990, p. 401).

Specimen: South of Rottneest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Callophycus harveyanus (J. Agardh) Silva.

For details see Huisman & Walker (1990, p. 401).

Specimen: South of Rottneest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Callophycus oppositifolius (C. Agardh) Silva

For details see Huisman & Walker (1990, p. 401).

Specimen: South of Rottneest I. Dredged from 42m depth (*C. Sim*, 16.i.1996; UWA).

Callophyllis rangiferina (Turner) Womersley 1973: 256.

Reference: Womersley 1994: 256–259, figs 80D, E, 81H–M.

Type Locality: Georgetown, Tasmania.

Distribution: From Champion Bay, Western Australia, around southern Australia and Tasmania to Tathra, New South Wales.

Specimen: North of Rottneest I. Dredged from 44 m depth (*C. Sim*, 15.i.1996; UWA).

Erythroclonium muelleri Sonder

For details see Huisman & Walker (1990, p. 404).

Specimens: North of Rottneest I. Dredged from 22 m depth (*C. Sim*, 15.i.1996; UWA). South of Rottneest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Hennedya crista Harvey

For details see Huisman & Walker (1990, p. 405).

Specimens: North of Rottneest I. Dredged from 40 m depth (*C. Sim*, 15.i.1996; UWA). South of Rottneest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Hypnea ramentacea (C. Agardh) J. Agardh 1876: 561.

Reference: Womersley 1994: 440–441, figs 153D–G, 154C, 155A,B.

Type Locality: “Novae Hollandiae”.

Distribution: Port Denison, Western Australia, around southern Australia to Walkerville, Victoria, and the north coast of Tasmania.

Specimen: North of Rottneest I. Dredged from 44 m depth (*C. Sim*, 15.i.1996; UWA).

Remarks: Previously recorded from Rottneest Island as *Hypnea episcopalis* Hooker & Harvey (Huisman & Walker 1990). The synonymy was proposed by Womersley (1994).

Nizymania conferta (Harvey) Chiovitti, Saunders & Kraft.

For details see Huisman (1997, p. 216).

Specimen: North of Rottneest I. Dredged from 40 m depth (*C. Sim*, 15.i.1996; UWA).

Remarks: Previously recorded from Rottneest Island as *Stenocladia australis* (Sonder) Silva (Huisman & Walker 1990). The synonymy was proposed by Chiovitti *et al.* (1995).

Phacelocarpus peperocarpus (Poiret) Wynne, Ardré & Silva 1993: 41.

Reference: Womersley 1994: 400–402, fig. 136.

Type Locality: Probably Tasmania.

Distribution: Rottnest Island, Western Australia, around southern Australia to Collaroy, New South Wales, and the east coast of Tasmania.

Specimen: North of Rottnest I. Dredged from 40 m depth (*C. Sim*, 15.i.1996; UWA).

Remarks: The present specimen is cystocarpic and in thallus habit and dimensions is seemingly intermediate between *P. peperocarpus* and *P. apodus*. Lateral ramuli near the apices are not as closely set as depicted for *P. peperocarpus* by Womersley (1994) and more closely resemble *P. apodus*. Branch widths, however, are 3–4 mm and fall within the range described for *P. peperocarpus*. Womersley (1994) acknowledged the presence of intermediates between the two species. This species was previously recorded from Rottnest Island as *Phacelocarpus labillardieri* (Turner) J. Agardh (Huisman & Walker 1990). The synonymy was proposed by Wynne *et al.* (1993).

Rhabdonia clavigera J. Agardh 1872: 38.

Reference: Womersley 1994: pp. 349–350, figs 113C–E.

Type Locality: Western Port, Victoria.

Distribution: From Rottnest Island, Western Australia, and Point Sinclair, South Australia, to Western Port, Victoria.

Specimen: North of Rottnest I. Dredged from 32 m depth (*C. Sim*, 15.i.1996; UWA).

Remarks: This is the first record of *Rhabdonia clavigera* from Western Australia. Although sterile, the Rottnest specimens (Figure 5) are entirely compatible with the description of this species given by Womersley (1994).

Order Gelidiales

Ptilophora prolifera (Harvey) J. Agardh

For details see Huisman & Walker (1990, p. 414).

Specimen: South of Rottnest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Order Nematiales

Galaxaura marginata (Ellis & Solander) Lamouroux

For details see Huisman & Walker (1990, p. 396).

Specimen: South of Rottnest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Order Plocamiales

Plocamium mertensii (Greville) Harvey

For details see Huisman & Walker (1990, p. 409).

Specimen: North of Rottnest I. Dredged from 44 m depth (*C. Sim*, 15.i.1996; UWA).

Plocamium preissianum Sonder

For details see Huisman & Walker (1990, p. 409).

Specimen: South of Rottnest I. Dredged from 27 m depth (*C. Sim*, 16.i.1996; UWA).

Order Rhodymeniales

Botryocladia leptopoda (J. Agardh) Kylin

For details see Huisman & Walker (1990, p. 414).

Specimens: North of Rottnest I. Dredged from 25 m, 44 m depth (*C. Sim*, 15.i.1996; UWA).

Gloiosaccion brownii Harvey

For details see Huisman & Walker (1990, p. 416).

Specimen: North of Rottnest I. Dredged from 32 m depth (*C. Sim*, 15.i.1996; UWA).

Rhodymenia sonderi P. Silva in Silva, Basson & Moe 1996: 370

For details see Huisman (1997, p. 224).

Specimens: North of Rottnest I. Dredged from 40 m depth (*C. Sim*, 15.i.1996; UWA). South of Rottnest I. Dredged from 14 m depth (*C. Sim*, 16.i.1996; UWA).

Remarks: Previously recorded from Rottnest Island as *Rhodymenia australis* Sonder (Huisman & Walker 1990, p. 416), a superfluous name recently replaced (Silva *et al.* 1996)

Webervanbossea kaliformis (J. Agardh) DeToni

For details see Huisman & Walker (1990, p. 416).

Specimen: South of Rottnest I. Dredged from 42 m depth (*C. Sim*, 16.i.1996; UWA).

Division Magnoliophyta (Sea Grasses)

Amphibolis griffithii (Black) den Hartog

For details see Huisman & Walker (1990, p. 442)

Specimen: North of Rottnest I. Dredged from 44 m depth (*C. Sim*, 15.i.1996; UWA).

Halophila ovalis (R. Brown) Hooker

For details see Huisman & Walker (1990, p. 443)

Specimen: North of Rottneest I. Dredged from 22 m depth (*C. Sim*, 15.i.1996; UWA). South of Rottneest I. Dredged from 38 m depth (*C. Sim*, 16.i.1996; UWA).

Posidonia angustifolia Cambridge & Kuo

For details see Robertson (1984, p. 96)

Specimen: North of Rottneest I. Dredged from 44 m depth (*C. Sim*, 15.i.1996; UWA).

Posidonia coriacea Cambridge & Kuo

For details see Kuo & Cambridge (1984, p. 270)

Specimen: North of Rottneest I. Dredged from 22 m depth (*C. Sim*, 15.i.1996; UWA).

Thalassodendron pachyrhizum den Hartog

For details see Huisman & Walker (1990, p. 442)

Specimen: North of Rottneest I. Dredged from 46–48 m depth (*C. Sim*, 15.i.1996; UWA).

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