Porphyra

For the color known in Greek as *porphyra*, see Tyrian purple.
Not to be confused with Porphyria.

Porphyra is a coldwater seaweed that grows in cold, shallow seawater. More specifically, it is a foliose red algal genus of laver, comprising approximately 70 species.[1] It grows in the intertidal zone, typically between the upper intertidal zone and the splash zone in cold waters of temperate oceans. In East Asia, it is used to produce the sea vegetable products *nori* (in Japan) and *gim* (in Korea). There are considered to be 60 to 70 species of *Porphyra* worldwide[2] and seven in the British Isles.[3]

1 Life cycle

Porphyra displays a heteromorphic alternation of generations.[4] The thallus we see is the haploid generation; it can reproduce asexually by forming spores which grow to replicate the original thallus. It can also reproduce sexually. Both male and female gametes are formed on the one thallus. The female gametes while still on the thallus are fertilized by the released male gametes, which are non-motile. The fertilized, now diploid, carposporangia after mitosis produce spores (carpospores) which settle, then bore into shells, germinate and form a filamentous stage. This stage was originally thought to be a different species of alga, and was referred to as *Conchocelis rosea*. That *Conchocelis* was the diploid stage of *Porphyra* was discovered by the British phycologist Kathleen Mary Drew-Baker in 1949 for the European species *Porphyra umbilicalis*.[5] It was later shown for species from other regions as well.[1][6]

2 Food

Most human cultures with access to *Porphyra* use it as a food or somehow in the diet, making it perhaps the most domesticated of the marine algae,[7] known as laver, *nori* (Japanese), *amanori* (Japanese),[8] *zakai*, *gim* (Korean),[8] *zicai* (Chinese),[8] karengo, *sloke* or *slukos*.[2] The marine red alga *Porphyra* has been cultivated extensively in many Asian countries as an edible seaweed used to wrap the rice and fish that compose the Japanese food sushi, and the Korean food *gimbap*. In Japan, the annual production of *Porphyra spp.* is valued at 100 billion yen (US$1 billion).[9]

3 Species

- *Porphyra cinnamomea*
- *Porphyra dioica*
- *Porphyra linearis* Grev.
- *Porphyra lucasii*
- *Porphyra mumfordii*
- *Porphyra purpurea* (Roth)
- *Porphyra umbilicalis* (L.) J.Agardh.[10]

Many species previously included in the genus *Porphyra* has transferred to *Pyropia*, for example *Pyropia tenera* and *Pyropia yezoensis*.[11]

4 References

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[4] Porphyra life cycle

[5] Drew, Kathleen M. (1949). "Conchocelis-phase in the life-history of Porphyra umbilicalis (L.) Kütz". *Nature* **164** (4174): 748–749. doi:10.1038/164748a0.

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[9] Aoki, Y. and Kamei, Y. 2006 Preparation of recombinant polysaccharide-degrading enzymes from the marine bacterium, *Pseudomonas* sp. ND137 for the production of protoplasts of *Porphyra yezoensis Eur. J. Phycol.* **41**: 321-328.

[10] Morton, O. 1994. *Marine Algae of Northern Ireland.* Ulster Museum, Belfast. ISBN 0-900761-28-8

[11] Sutherland et al. "A NEW LOOK AT AN ANCIENT ORDER: GENERIC REVISION OF THE BANGIALES (RHODOPHYTA)". *J. Phycol.* **47** (5): 1131–1151. doi:10.1111/j.1529-8817.2011.01052.x.

5 External links

- http://www.mbari.org/staff/conn/botany/reds/lisa/consume.htm *Porphyra* human consumption.

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