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♦1. The system proposed by Eichler, who was famous for his work entitled Bluthendiagramme (1875-78) was actually the first phylogenetic system of plant classification. He divided the plant kingdom into two sub-kingdoms, named as Cryptogamae and Phanerogamae, on the basis of the absence or presence of flowers and seeds. The Cryptogame (Gk. Kryptos = concealed; games = marriage) include all non-flowering plants such as algae, fungi, lichens, mosses and ferns, whereas all flowering plants which bear seeds are included in Phanerogamae (Gk. Phaneros = visible; gamos = marriage). Cryptogams are further classified into three divisions namely Thallophyta, Bryophyta and Pteridophyta on the basis of simplicity and complexity of the plant body. Thallophyta (Gk. Thallose = undifferentiated body; phyton = plant) includes plants whose body is not differentiated among root, stem and leaf. Bacteria and viruses were considered parts of fungi. Bryophyta (Gk. Bryon = moss; phyton = plant) are amphibians of plant kingdom owing to the amphibious habitat of the plants. They are characterised by the presence of conspicuous, green, well developed, nutritionally independent gametophytes to which are always attached physically and nutritionally dependent sporophytes. Bryophytes were divided into three classes: Hepaticae (Liverworts), Anthocerotae (Hornworts) and Musci (mosses). The Pteridophyta (Gk. Pteron = feather; phyton = plant) are the spore-bearing most primitive vascular cryptogams. They are an assemblage of flowerless, seedless and spore-bearing plants that have successfully invaded the land. Pteridophytes were classified into four classes: Psilopsida, Lycopsida, Sphenopsida and Pteropsida. The phanerogams are also known as spermatophytes (Gk. Sperma = seeds; phyton = plant) since they produce seeds. These seed-bearing plants were further grouped into two division Gymnospermae and Angiospermae. The Gymnosperms (Gk. Gymnos = naked; sperm = seeds) are naked seeded plants with their ovules freely exposed on open megasporophyll. Goebel has rightly described them “Phanerogams without ovary”.

**2. Mineral contents:**

1. High mineral content, upto five percent of the wet material, in which all the mineral elements important in human and animal physiology are found, makes sea weeds a unique supplement for a well balanced diet

#### Direct use of algae as food for man:

1. Since the pre-historic times, several sea weeds have been used as direct source of food to human beings. Several fresh water algae have also been utilised in the preparation of various kinds of vitaminized food.

#### As a source of agar:

1. The best agar is manufactured from Gelidium of Rhodophyceae, which is also called vegetative agar; Japan produces the largest quantity of agar.
2. **Unicellular algae** are plant-like autotrophs and contain chlorophyll. They include groups that have both multicellular and **unicellular** species: ... Diatoms, **unicellular algae** that have siliceous cell walls
3. **Algae** regenerate by sexual **reproduction**, involving male and female gametes (sex cells), by asexual **reproduction**, or by both ways. ... Many small **algae reproduce** asexually by ordinary cell division or by fragmentation, whereas larger **algae reproduce** by spores.

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| 5.  The Colonial Algae.  The term colonial as used here applies to algae in which cells resembling free-swimming unicells form groups which may be large and elaborately interconnected as in Volvox, or smaller and relatively simple as in Synura. |

The largest and most **complex** marine **algae** are **called** seaweeds.

1. **Seaweed**, any of the red, green, or brown marine algae that grow along seashores. **Seaweeds** are generally anchored to the sea bottom or other solid structures by rootlike “holdfasts,” which perform the sole function of attachment and do not extract nutrients as do the roots of higher plants.