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Energy Crunch

1. Species of diatoms which occur only in very restricted environments may reflect unfavorable chemical and physical conditions when found outside their normal habitats.
2. The presence of large numbers of diatom species in a habitat does not prove that the ecological conditions observed are optimal for that species. It only indicates that the species is tolerant to the conditions present. Its status may be assessed better by the disappearance, reappearance or repression of species more sensitive to the environment being observed.
3. The concept of rare or frequent occurrence loses biological significance when the counting of individuals is done on an absolute numerical basis rather than on a number per volume (total biomass) basis.
4. Microenvironments must be carefully explored or false results will be obtained with respect to dominant species.

Summary

Many chemical and physical factors influence the distribution of diatoms within biological communities. However, care must be taken when interpreting the ecological significance of diatom populations. Diatoms can be used as biological indicators of ecological conditions if such cautions are observed.

Literature Cited

Hudstedt, F. 1957. Die Diatomeenflora des Flusssystems der Weser im Gebiet der Hansestadt Bremen. *Abh Naturwiss. Ver. Bremen* 34:181-440.

Vinyard, W.C. 1979. *Diatoms of North America.* Mad River Press, Inc. 120 pp.

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Energy Crunch

Chop up some spinach, throw in some fat, add water, sunlight and a few other chemicals, and you may end up with a recipe for easing the energy crunch.

At the Michigan State University laboratory of biophysicist Dr. H. Ti Tien, these ingredients are used to make a device for generating electricity directly from sunlight.

Supported by a five-year, $450,000 research grant from the National Institutes of Health, Dr. Tien is experimenting with artificial membranes mimicking the properties of membranes contained in plant and animal cells.

Made from fatty materials, the basic structure is less than one-millionth of an inch thick. Built into this ultra thin film is chlorophyll or other pigments which have been extracted from spinach, or, in a pinch, from grass cuttings taken from Dr. Tien's front lawn.