

### *Gelidium* species

**AGAR** are seaweeds. Japanese isinglass {*Gelidium amansii*}, *Gelidium elegans*, *Gelidium polycladum* are found in the maritime zones of Japan and the East Indian coast and *Gelidium cartalagineum* is found in the maritime zones of South Africa and United States.

It is also known as Agar-agar, Bengal isinglass, Ceylon moss, Chinese moss, Japanese moss, and Seaweed.

Agar is collected commercially. Its growth is sometimes encouraged on poles driven into the sea bed. The natural seaweed is harvested either by raking it in from boats or by divers. It is then boiled for 6 hours in the presence of dilute sulphuric acid and the liquor is dried. It produces small crumpled greyish-white, translucent strips of dried seaweed are used.

First known reports of the properties of these seaweeds are attributed to a Japanese innkeeper, Minoya Tarozaemon.

Agar is extracted from seaweeds, particularly those from Japan such as Japanese isinglass, and has no nutritional or therapeutic value, unlike gelatine. However like gelatine it can be used domestically as a thickening agent. The Chinese have also used it as a stiffening agent for silks.

In the 1880s Robert Koch (1843-1910), the German physician and pioneer bacteriologist, used agar in the cultivation of bacteria, fungi and tissue cultures. This was a radical development at that time and it enabled the cultivation and identification of many bacteria that cause human and animal disease – and most agar is still used for this purpose today.

But in Japan especially some agar is used for sizing, stiffening and glazing cloth. And it is also used by the food industry for thickening such products as ice cream, and by the pharmaceutical industry for mixing and binding ingredients for pills.

Other seaweeds provide agar although the Japanese species are considered the best and have the greatest gel strength. In Britain agar comes from sea lettuce (*Ulva lactuca*) and *Gigartina stellat*. It also comes from the New Zealand *Pterocladia lucida* and from the Australian *Gracilaria confervoides*.

Today agar-agar is used commercially by the pharmaceutical industry in stabilizing laxative emulsions, as the basis of bacteriological culture media in medical and pharmaceutical research and processing, as a thickening agent in some commercially produced foodstuffs eg. puddings, ice creams, sauces and canned soups and in dentistry and forensic science. It is also used as a physical base for some air purifiers.