

Diversity and origin of bottle gourd, *Lagenaria*

Hiroshi Yuasa

The Research institute of evolutionary biology Setagaya-ku, Tokyo 158, Japan

Bottle gourd, *Lagenaria siceraria*, is one of the oldest cultivated plants. To begin with, its fruit was used as a complete liquid bottle or container.

It was a very widespread cultivated plant in prehistoric times, for example (there) is a report from Peru as early as between 13,000 B.C and 11,000 B.C.

The dug-out finds in Japan proved to be about 95,000 years old according to the ¹⁴C analysis.

The bottle gourd was the most important plant before the invention of pottery in many areas of Asia, New Guinea, Polynesia, America, and Africa.

I would like to suggest that there should be “ The Bottle Gourd Age” prior to the Pottery Age.

Bottle gourds are also used for various purposes such as food, masks, pipes, musical instruments, medicine, symbols, artistic products and also as penis-sheaths of men's attire.

Their purposes number more than 220 including 70 varieties of containers or bottles. I consider that its utilization should be called a culture, as it were, “The gourd culture”.

The shape and the size of the fruit of bottle gourd have a larger variety than those of any other plant. As for the size, it is reported that they range from those that are shorter than 3cm to those that are ovoid and longer than 60cm in diameter.

With regard to the shape of its fruit, the bottle gourd can be classified into 7 groups and even more than 30 races, considering the difference of the size.

The seeds are so variable without two horn-like projections, with smooth surface or longitudinal lines, white or brown, with smooth corky margin. Generally, it seems that there is no correlation between seed shape and fruit shape. My study shows that the seeds of gourd. My study shows that the seeds of gourd in Asia are so simple in shape and in color except for the size. But the seeds of those in Africa are various and seem to be beyond the confines. Explaining the great diversity of the seeds of those in Africa therefore, they appear to have no correlation among the types of fruit of the bottle gourd with African

origin

It might be supposed that another 4 wild *Lagenaria* spp. distribute only in Africa.

The intraspecies hybrid is confirmed between the bottle gourd, *Lagenaria siceraria*, and wild *L. spehaerica*. And F1 hybrid is sterile: it has no fertility.

However, even though the shapes of the fruit and the seeds are different, they can cross with each other. Moreover, their hybrids grow up to be extremely vigorous and have normal fertility. Fruit shapes of F1 plants are similar to those of their parents, if they have the same character. Whereas, the fruit shape often became different from each other when the cross occurs between those with different fruit shapes.

It is shown that dumbbell shapes, *HYOTAN* in Japanese, is recessive while its bitterness is dominant. Thus the character of F2 hybrids is segregative.

I'll give further particulars of the heredity of the gourd in my lecture.