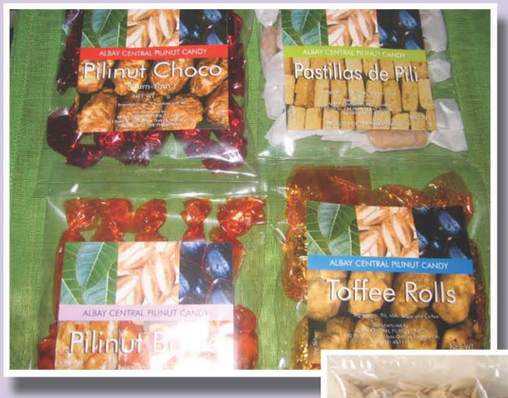

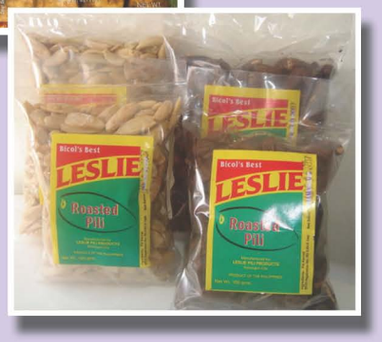

Inarched Pili

Pili grows naturally in all provinces in Bicol, yet few commercial orchards can be found in the region. This is because pili is a dioecious plant, which means only female plants bear fruit. The problem is that there is no proven technology to determine the sex of the plant by mere observation of the seed or the seedling. To produce desirable female seedlings, and promote the development of the pili industry. BCARRD recommends asexual propagation.

The Bicol University College of Agriculture and Forestry in Guinobatan, Albay has shown the propagation of female pili seedlings through inarching or approach grafting. Although it is considered a laborious and time-consuming technique, it nevertheless assures a high rate of success compared with budding and/or cleft grafting. Success rate even with weather disturbances was kept at about 75%.

Inarched pili seedlings are more robust than cleft-grafted seedlings; hence, they could be sold at a higher price. The technique could easily be taught to adopters who are willing to invest in a nursery.

Source: BCARRD write-up, 2006.

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PHILIPPINE COUNCIL FOR AGRICULTURE, FORESTRY AND NATURAL RESOURCES RESEARCH AND DEVELOPMENT (PCARRD)
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Pili: Bicol's Tree of Hope

Introduction

Pili (*Canarium ovatum* Engl.) is an indigenous fruit tree crop in the Philippines. The fruit is botanically classified as a drupe but it is popularly called pili nut. The fruit ranges from 4 cm to 7 cm long, 2.3–3.8 cm in diameter 5.7–4.7 g in weight. Its peel (exocarp) is smooth and shiny which changes color from green to purplish black upon maturity. The next layer (mesocarp) is smooth to fibrous and fleshy. The endocarp or the shell is brown, elongated and triangular with pointed basal end and a blunt apical end. In between the seed and the hard shell is the brown, papery seed coat or testa. The seed contains two large whitish cotyledons known as the kernel. It is the main product used in sweetened crispy pili, tart, salted or roasted pili, and other food items.

Pili could well be the "Secondary Tree of Life" due to its various products. To the Bicolanos, it is their "Tree of Hope." There are potential processing and utilization possibilities as food, feed, industrial uses, fuel, and handicraft material from every part of the tree (PCARRD, 1997).

Such potentials make pili one of the flagship commodities of the country and currently the primary focus of Region 5. The region is the largest pili producer. It produced 82% of the total volume of production in 2005. Among the provinces in the Bicol Region, Sorsogon has the highest number of bearing trees (88,270) followed by Albay (80,809).

The Philippines has exported pili nuts to various countries like the United States, France, Germany, Hawaii, Great Britain, Japan, China and Hongkong. Another by-product, the elimi, has also been sold to said countries.

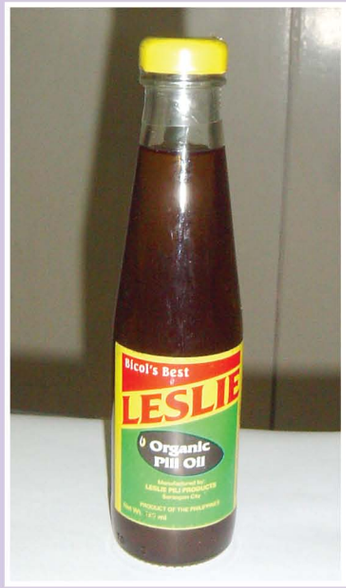
Products

Pili Pulp Oil

Pili pulp oil production is an emerging technology and enterprise that is both ingenious and economical. The pili pulp, which is usually discarded after removing the kernel, is now a source of oil.

In Bicol, there are at least two processors of pili pulp oil namely, Mrs. Minda Yee and Mr. Jose Navarro. Mrs. Yee produces organic oil which can be used for culinary and pharmaceutical purposes. On the other hand, Mr. Navarro produces industrial-grade pili pulp oil.

Mrs. Yee's pili pulp oil carries the brand name Leslie Organic Pili Oil. It has been registered and approved by the Bureau of Food and Drugs (BFAD) and is being patented. Her product is distributed in Bicol and in some parts of Manila.



Process. There are two ways to extract oil from the pili pulp—through mechanical pressing and solvent extraction. More oil can be extracted when freshly harvested matured pilinuts are used. Depulping is done by blanching the fruit in lukewarm water (not higher than 60°C) for 5 minutes or soaking in tap water for 2 days.

Mr. Navarro uses a rotary depulping machine developed with the help of the Department of Science and Technology (DOST) to expedite the process. The rotary depulping machine can process 200 sacks of pili a day or 2,500 kg of pili per hour. Once the pulp is removed from the nut, water is added to the pulp (1:1 ratio).

Using a fine net, the liquid is extracted from the pulp and filtered thrice. The extracted liquid is then set aside to allow the yellowish liquid to float. The floating yellowish liquid is scooped and cooked in a stainless pot for at least 30 minutes in low fire. It can also be steamed for 4 hours. Recovery is higher compared with cooking in direct heat. After cooking or steaming, the oil is then filtered and packed in sterilized bottles.

Properties and composition. Pili pulp oil is clear and may appear greenish yellow. It has 56.7% oleic glycerides, 13.5% linoleic glycerides and 29.3% saturated fatty acids. Based on the analysis done by DOST Region V, the oil has very low free fatty acid (FFA) content of 0.06% and moisture content of only 0.04% which assures longer shelf life.

Compared to olive oil, pili pulp oil has more beta carotene, a known source of vitamin A, caroteneoids, tocopherols (vitamin E) and phytosterols. These substances are antioxidants that protect cells from oxidation and neutralize unstable free radicals. Pili pulp oil is also a good source of protein, iodine, and calcium.

Uses. Pili oil can be used in salad dressings, sardines, baking and in other food preparations. The oil contains natural germicide, anti-bacterial and anti-inflammatory agents effective in healing wounds, and allergies.

According to Mrs. Yee, pili pulp oil is suitable for people with delicate skin and helps prevent wrinkles with its anti-aging element. It also prevents acne and pimples. The oil is now used as main ingredient in bath soaps and massage oils; it is also used as an additive in anti-dandruff shampoos.

Pilinut Confectionaries

Pilinut candies in countless forms and tastes have been enticing our taste buds for several decades now. These candies are not only distributed in the country but also exported to Japan, Australia and US.

To date, there are 144 pili processors in Bicol, with 68 in Sorsogon, 65 in Albay and 11 in Camarines Sur. With the aid of other institutions, pili processors have improved the quality and packaging materials to meet global standards.