doi: http://dx.doi.org/10.7719/jpair.v1i1.53

Sablot *(Litsea glutinosa)* Lour. Rob.: Bringing it Back to the Landscape

Alfredo R. Rabena, Ph.D.
University of Northern Philippines, Vigan City, Ilocos Sur

ABSTRACT

Sablot *(Litsea glutinosa)* Lour. Rob. leaves of a multipurpose tree belonging to the Lauraceae family, an original component of plastering in the construction of brick houses in the old Ciudad Fernandina now Vigan City in Ilocos Sur, Philippines is fast disappearing due to urbanization and many factors. This study determined the versatility of sablot *(Litsea glutinosa)* in order to bring back its use in the plastering industry. New frontiers in the discovery of the multipurpose tree showed medicinal value. Phytochemical analyses of sablot leaves showed antimicrobial properties against bacteria. Products like extracts formulated into ointments were derived from both leaves and barks manifested high growth inhibitions. Propagation techniques using seeds, cuttings, propagation by transplanting and by marcotting and other experimental strategies are studied to bring back sablot *(Litsea glutinosa)* to the landscape for human livelihood specially in the tropical rural areas of Ilocos of the Philippines. The primary objective of this study is to account the many uses of *sablot* both indigenous practices as well as new discoveries in order to fully utilize its potentials.

Keyword: Sablot

INTRODUCTION

It has been estimated that in the early 1500s, the Philippines possessed 27 million ha of forest, representing 90% of the country's total land area. The forest cover amounted to 21 million ha at the beginning of the 1900s and by 1996 had decreased to 6.1 million ha, representing a loss of 15 million ha in less than one century (Lasco et al 2001). Non-timber forest products constitute a significant area which is the source of income and survival of forest dwellers. This is a result of the government's ban on the export of logs. Among the non-timber products which include the lesser known species are potential sources of raw materials which are being utilized not only the mountain dwellers and farmers but also ordinary settlers in the lowlands and coastal areas. These lesser known species (LKS) include trees, palms, bamboos, rattans and other plants that were used years ago by them as a result of their self discovery and because of the call of necessities to live and survive. Thus, such living things turned out to be multipurpose in nature.

Their nature made them versatile that they almost cater the needs of ordinary dwellers and eventually all its populace. The popularity of multipurpose trees (MPT) expands their horizons manifesting wide varieties of simple products complicated end users up to more commercially presented products demanded by the consumers.

But as time pass, such sources of raw materials became scarce. Depletion of the renewable resources were observed and seen. Such conditions gave further both economic as well as environmental problems. These are the offshoots of the lack of knowledge on the uses and the importance of the resource. People then were just users who simply profit themselves momentarily without considering the outcomes of their activities in the long run. The exploitation of the natural resources gave no good results both at the present times and their long era of existence. Because man continually seeks for advancement, he has to find ways to utilize his God given resources. In Vigan, indigenous technologies were developed from the natural resources existing in the locality, most of them are trees .

Natural Resources	**Native Industry & Products**
1. Tayum (*Indigo*)	Dyes (blue and indigo)
2. Narra *(Pterocarpus indicus)*	Furniture/wooden coaches/carriages
3. Acacia (*Samanea saman)*	Furniture
4. Bittaog (*Callophyllum imphylum)*	Furniture/wooden coaches/carriages
5. Sugarcane(*Saccharrum officinale*	
6. Cotton	Food, native wine (basi)
7. Bamboo (*Bambusa)*	
8. Samak (*Macaranga tanarius*)	Textile
9. Kamachile (*Pithecolobium dulce)*	Handicraft/construction
10. Kapok *(Ceiba pentandra)*	Native wine making as flavors (basi)
11. Sablot *(Litsea glutinosa)*	
	Tannery
	Textile/pillows
	Building construction

Table 1. Indigenous Technologies

Natural Resources	**Native Industry & Products**
1.Tobacco (*Nicotiana tabacum*)	Cigarettes
1. Corn *(Zea mays)*	Foods and feeds
2. Garlic (A*llium sativum*)	Food

Table 2 . Forest lands in the Philippines in 1997 (DENR 2001).

Land-Use Types	Area (ha)	%
Forest	**5,391,717**	**18.0**
Old Grown Dipterocarp	804,900	2.7
Residual Dipterocarp	2,731,117	9.1
Closed Pine	123,900	0.4
Open Pine	104,000	0.3
Submarginal	475,100	1.6
Mossy	1,040,300	3.5
Mangrove	112,400	0.4
Brushland	2,232,300	**7.4**
Other land use	22,375,983	**74.6**
Grand Total	**30,000,000**	**100.0**

Craftsman and artisans utilized them for daily use without any knowledge on the consequences it brought to their future. To cite, corals from deep seas and coasts were also gathered as substitute of lime in their quest for artistry and livelihood in the construction industry. Churches built in the 18th century utilized corals for facades and walls. The time when such materials were so abundant but didn't mind the ill effects it brought.

One important resource is a multipurpose tree – the sablot (*Litsea glutinosa*). An endemic species in Vigan, Ilocos Sur, Philippines. It is one of the cited natural resources which were used by craftsmen and artisans in the construction of old brick houses of Vigan and the Ilocos. Mixing the leaves of *Litsea* with other components made Vigan ancestral houses still standing to present times. For almost two centuries now, leaves were just gathered and remaining branches were used as fuelwoods without caring the defoliated and dried trees which arrest their sustainability.

It is then the aim of this study to cite indigenous technologies using the sablot (*Litsea glutinosa*) which can be revived by knowing fully its uses thus developing new products and create awareness on the sustainability of this resource, thus protecting and conserving them to their proliferation.

Botanical Description

Sablot *(Litsea glutinosa)* Loureiro, C.B. Robinson is a tree 10 meters high or less, the young parts usually more or less softly pubescent. The leaves are elliptic to oblong-elliptic, usually softly pubescent, 9 to 20 cm long. Umbels in the upper axils, solitary or umbellate, 1 to 1.5 cm in diameter, their peduncles above 1 cm long, containing many, small crowded, yellowish flower, fruit glabrore, 8 mm in diameter or less (Merrill.). Flowering is March to May. It is widely distributed in the Philippines at low altitudes and in the Indo-Malayan Region.

Sablot is known also as *Sebifera glutinosa* Lour., a dicot of the Laurel family, Lauraceae. (W3Tropica). Older names include *Litsea chinensis* Lamk.

Common names of *Litsea glutinosa* in other countries

Balongai
Methaluang
Thang-buan
Malek
Malih
Huru tangkalak
Wuru lilin
Mimen
Porikit
Lanjca
Indian laurel (English)
Boi loi nhot (Vietnam)

Common Names in Ilocos (Philippines)
Sablot
Puso-puso
Batikuling

Common Names in the Philippines

Murambong
Pasay
Malak
Malabakan

Synonyms

***Litsea chinensis* Lamk.**
***Litsea geminata* Blume.**
***Litsea glabraria* A.L. Juss.**
***Litsea tetranthera* (Willd.) Pers.**
***Litsea sebifera* Pers.**

A. MULTIPURPOSE USES OF SABLOT IN ILOCOS

1. LEAVES

Sablot is used by artisans, masons and builders and an important ingredient in the formation of plastering mixture. As early as 19th century, the historic City of Vigan started to build its thick-walled houses using bricks. The bricks utilizing Vigan City were cooked in original dragon kilns and put together using a plastering substance. The plaster is a mixture of sand & lime to form a binding mixture called *"argamasa"*. When there were no cement yet, to make it more durable, leaves of sablot *(Litsea glutinosa)* are chopped and soaked in water for 2-3 days. The water containing the extract is mixed with other materials like

egg white, molasses (sugar cane juice) together with *Litsea* liquid to make it waterproof.

PHYTOCHEMICAL ANALYSIS OF SABLOT *(Litsea glutinosa) Lour. C.B. Rob.*

Sablot leaves were subjected to phytochemical analysis. This process includes the quantitative tests to determine the presence of alkaloids, glycosides, tannins, saponins, flavonoids, triterpenes and sterols in sablot.

Table 3. Phytochemical analyses of sablot.

Components	**Occcurences**	**Indications**
Alkaloids	Moderate amounts ++	Yellowish precipitate
Glycosides	Negative -	
Tannins	Moderate amounts ++	Heavy precipitate
Saponins	Negative -	
Flavonoids	Traces +	Red color formation
Sterols	Traces +	Blue-color production
Triterpenes	Negative -	

Table 4. ANTIMICROBIAL ASSAY OF SABLOT *(Litsea glutinosa)* LEAVES

Sample	Echerichia coli				Styphylococcus aureus			
Sablot (*Litsea glutinosa)*	1	2	3	AI	1	2	3	AI
Leaves	10.2	10.1	10.2	.016	10.2	10.2	10.2	.012

2. WOOD

Sablot is an important non timber tree abundantly growing on the lowlands and hilly areas of Ilocos. It has many branches which are utilized as fuelwoods. Gatherers usually cut them and sundry for 2 weeks. Older and bigger-diameter wood requires 3 to 4 weeks of stocking under the sun. Trunks of sablot are cut into smaller pieces. Its wood is not as popular as narra (*Pterocarpus indicus)* and molave *(Vitex parviflora)* for furniture .

3. FLOWERS

Flowers bloom from March to May. Fruits occur in May or June which are commonly eaten by migrating birds like *"pios"* and local birds, Local birds include "maya", "panal", "pagaw" and "pagaw-barog" (Alcantara, 2003). Birds that feed on sablot fruits further transfer to other places. Fruits are much liked by insects

and birds if not most of them are matured and germinate the following rainy season which starts from June and ends in late October.

4. BARKS

Barks of sablot in Ilocos are made into antiseptic paste. The bark is cleansed, chopped from the trunks, ground and placed over a wound. It cures a 1 mm skin laceration in 24 hours.

ANTIMICROBIAL ASSAY

An antimicrobial assay using barks from trunk of sablot involving two microorganisms was conducted at the University of Northern Philippines. The sablot bark paste was tested against *Escherichia coli* UPCC 1195 and *Styphylococcus aureus* UPCC 1143.

Table 4. Antimicrobial assay of sablot bark

Sample	Echerichia coli				Styphylococcus aureus			
Sablot (*Litsea glutinosa)*	1	2	3	A1	1	2	3	A1
A . Bark (paste)	10.6	10.8	10.8	.073	10.4	10.3	10.3	.033

B. PROPAGATION OF SABLOT (Litsea glutinosa)

The unique existence of the Vigan House is the main reason why this historic city is listed as a World Heritage Site. The Vigan House which are in the state of dilapidation need to be preserved and put to their original art & form. One of the requirements is the putting back of old structures & their skin of the original components. Gone are the days where we use technology utilizing indigenous raw materials. In plastering, the lime no longer used instead it is now replaced by cement. Experts along conservation and preservation suggested the employment of lime and *sablot* in order to bring back the authenticity of plastered walls and facade.

As a response to the suggestions, this paper attempts to answer them. Propagation of sablot *(Litsea glutinosa)* were done in many forms. These include seed, cuttings (tops and stems) at varying soil types, transplanting into plastic bags taken from natural germination areas and marcotting of branches and stems from a standing tree.

Seeds. Seeds of sablot were collected in April, 2004 from Vigan City. They were soaked overnight and planted in plastic bags containing different types of soil during the month of May. Growth of the seedlings were monitored.

Table. 5. Germination of sablot seeds planted in different soil types.

Type of Soil (Vigan) (in 10 bags/type)	Number of Days when Germination Occurred (days)
1. loam-sandy (2:1)	10
2. loam - red clay (5:1)	7
3. organic soil (compost)	6
4. manure-compost (1:1)	6

Cuttings. Cuttings of sablot *(Litsea glutinosa)* were taken from a standing tree in Vigan with approximately 40 years old. Branches were cut. The tips having 10 cm length were planted in 4 different types of soil in 10 bags. The lower portion of the cut branch were sized into 12 cm and planted into plastic bags containing 4 different types of soil. Watering is done 6-7 o'clock in morning and 5-6 in the afternoon.

Table. 5. The germination from the bud and from the stem(in days) of sablot *(Litsea glutinosa)* cuttings (tips and stems) in different soil types in 10 plastic bags.

Litsea cuttings	Soil Type	Ave. No. of Days before budding occur
A. tips	1	9
	2	9
	3	8
	4	7
B. stems	1	14
	2	14
	3	12
	4	12

Transplanting. Seedlings growing under the standing sablot tree and around the periphery of it having 40 to 50 cm in height were transplanted into plastic bags. Five 40 cm and five 50 cm naturally growing seedlings were observed. It took an average of 5 days for them to recover and gain their natural form. Such seedlings were further transplanted into their specified permanent and intented location until their maturity.

Marcotting. A 10 year old standing sablot tree of 12 meters height was assigned as the mother tree for marcotting. Two opposite branches were subjected to peeling off by manually removing the epidermis. A plastic receptacle containing compost-manure-loam soil moistened with water was placed tightly roped and observed. Frequent inspection was made. Outgrowth of roots started on the 9th day. Separation of the marcotted branch was done on the 20th day. The marcotted branch was transplanted on a specified permanent location until maturity.

Community Awareness and Involvement

The Litsea Conservation Network based at the University of Northern Philippines in Vigan, Ilocos Sur, Philippines was established through the efforts of many institutions and individuals. Its establishment paved the way for the involvement of many sectors in the care and protection as well as on the conservation of this endemic and versatile but disappearing multipurpose tree. Flyers and brochures are now distributed. Pluggings in radio as well as in TV (NBN) are made. Seminars and meetings were held in the barangay levels and in the academe. The Parish of St. Paul in Vigan is involved in the dissemination of this project. Tree planting on sablot is advocated by the Parish Priest who is one of those who suggested that preservation of antique walls of churches and houses must be done with lime and sablot. Conservationists in the Heritage City of Vigan, architects and City officials are now advocating the use of sablot in order to maintain the original appearance of the buildings.

SUMMARY AND CONCLUSIONS

1. The leaves of sablot contains alkaloids, tannins, flavonoids and sterols. Its leaves can cure nasal congestion, cough , malaria and stops hemorrhage. Because of its tannins, it can eliminate sore throat and stomatitis. It can remedy menstrual disorder and rickets due to its flavonoids and it is a good antifungal, antiinflammatory as well as an cytotoxic agent. This is substantiated by the antimicrobial assay which manifested an index of .016 against *Escherichia coli* and *Staphylococcus aureus* at 0.02.

2. The leaves are used in the formulation of a binding mixture with lime, sand and molasses needed in plastering of walls and facades of buildings.

3. Its bark paste is a perfect cure for wounds as an antiseptic as shown by the antimicrobial assay against *E.coli* and *S. aureus* at 0.073 and 0.033 respectively.

4. Sablot wood can be used as fuelwood and in the furniture industry but inferior to narra *(Pterocarpus indicus)* and molave *(Vitex parviflora).* Its wood density at low is 540 kg per cu.m., medium at 700 kg per cu. M. and high at 810 kg per cu.m. and moisture content at 15%.

5. Flowering of sablot is from March to May. Birds feed on fruits and seeds which transfer seeds to different places where they germinate and grow naturally. Maturing of fruits in early April and end of May. Germination of seeds and growth of seedlings is natural during the early rainy season which starts in June till October.

6. Propagation of this multipurpose tree can be made in many ways. It can be done by direct planting of the seeds in plastic bags which takes 6 days. It can be done also by cuttings utilizing both the tips and branches from a mother tree. Budding of the tips takes 7 days and budding at the sides of more matured stems is 12 days at the average. Transplanting of naturally grown seedlings from surroundings of mother tree takes 5 days before it fully regain robustness. Marcotting of branches from a standing sablot tree requires 5 days in order to grow roots from the cut epidermis and taakes 18-20 days to fully develop big roots of 3-4 cm length.

7. The Litsea Conservation Network is an effective vehicle in the promotion of the conservation and protection of this natural resource which will lead into the development and discovery of the many potentials of Litsea glutinosa which is now fast disappearing.

RECOMMENDATIONS

1. There is a need to study the faster way of propagating the sablot by the use of tissue culture. Protocols must be developed so as to rescue them from extinction.
2. Further studies must be conducted on its silviculture in order to fast track the need to have more and better quality of seedlings.
3. More studies to be conducted along the nature and quality of its wood and the uses of its flowers and fruits.
4. There is a need to collaborate with taxonomists and experts all over the world in order to fully identify its varieties and characteristics.
5. There is a need to utilize sablot in its full potentials which are found to be more environment friendly in medicine, in agriculture as well as in the construction industry.

REFERENCES

ALCANTARA, J. (2003). Personal Observations and Experiences on Local Bird Migration in Ilocos . Puroc A Bassit, Vigan City, Ilocos Sur, Philippines

ANDERSON, B. et al. 1975. Remington's Pharmaceutical Sciences. Mack Pub. Co. Pennsylvania, USA

BAGUINON, N. 2003, Identification of Sablot, UPLB-CFNR, College, Laguna, Philippines.

CIMATU, F. 2004, Exhibit Shows "Skin of Church". Philippine Daily Inquirer Northern Luzon, Philippines.

DENR, 2001. Philippines Forestry Statistics 2001. Forest Management. Bureau, Quezon City, Philippines

FLORENTINO, R.I. 2001, Plastering of Ciudad Fernandina Houses, Vigan City, Ilocos Sur, Philippines

LASCO,et al. Secondary Forest in the Philippines: Formation and Transformation in the 20th century. Journal of Tropical Forest Science 13:652-670.

LOUMA-AHO, et al. Forest Genetic Resources Conservation and Management Proceedings of the Asia Pacific Forest Genetic Resources Programme (APFORGEN) Inception Workshop, Kepong, Kuala Lumpur, Malaysia, 15-18 July 2003.

MALABRIGO, P.. 2002, Characteristics of Litsea glutinosa. UPLB-CFNR College, Laguna, Philippines

MERCADO, Msgr. T. 2004. Sablot as Components of Plastering, St. Paul Parish, Vigan City, Ilocos Sur. Philippines

MERRILL, E.D. (1911). Flora of Manila. Bureau of Science, Manila, Philippines

MISSOURI BOTANICAL GARDEN. 2004. W3Tropicas Namenclatural Data Base. Http://mobot.mobot.org/cgi_bin/searchs_vash?order =N17805230, (July 7)

RABENA, A.R., ESGUERRA, N., BAJET, M and M. GUZMAN, 2004 .Phytochemical Analysis of Sablot (Litsea glutinosa) Lour. Rob. A Paper Presented at the 2004 National BIOTA Convention. May 2-3,2004, Northwestern

University, Laoag City, Philippines

RABENA, A.R. 2004. The Antibacterial Screening of Sineguelas Aso *(Casearia grewiaefolia)* Paper Presented at the – National Philippine Society for Microbiology, Inc. April 2-3, 2004 Heritage Hotel, Pasay City, Philippines

RABENA, K.F. 2004, Botanical Description on *Litsea glutinosa* Lour. Rob. UPLB-CFNR, College, Laguna, Philippines.

REYES, Rev. R. 2002, Uses of Sablot, Lady of Assumption Parish, Sta. Maria, Ilocos Sur, Philippines.

SOEWARSONO, P.H. 1990. Specific Gravity of Indonesian Woods and its Significance for Practical Use, FRPDC, Forestry Department, Bogor , Indonesia. p.123.

US Educator Encyclopedia. 1986.