

The HIMBABAO Plant

Description of Plant

Himbabao (*Broussonetia luzonica* (Blanco) Bur.) is a medium-sized shed tree with a height of 15 meters (m) and a trunk diameter of 30 centimeters (cm.). It is locally known as Alokon, Malambingan, Babayan (Tagalog); Alokon, Alakon, Alucon, Himbabao (Ilocano); Balongkadios (Bisaya); Baeg (Pangasinan); Salugim (Marinduque); *bohulilambaji*, *ragantulu* (Indonesia); and *Birch flower* in English.



This plant is in no way related to the birch tree. It is a member of the *Moraceae* family, the Mulberries. This large shrub is closely related to the Paper Mulberry, the bark fibers of which are used to make Japanese Washi paper and tissue.

While it grows all over the Philippines the male inflorescences and tender young leaves are only much used in the northeast (Luzon, etc.).

The leaves are alternate with pointed apex and rounded base. The lower leaf surface is hairy. The flowers are very small and are borne on very long, slender, spike-like flowering branches. Pistillate and staminate inflorescences are borne on separate plants. Fruits are globose syncarp with numerous seeds.

Origin and major types

The plant is widely distributed in the Philippines and Sulawesi (formerly known as *Celebes* is an island in Indonesia) in secondary forests. Alokon is also a common non-native in Hawaii.

The production and propagation of this crop is confining only on a backyard scale.

Nutritional Properties

Himbabao is rich in different nutrients as listed in Table 1.

Table 1. Nutritional values of *himbabao* flowers per 100 grams edible portion

Nutrients	Boiled
Water (g)	86.8
Protein (g)	2.9
Fat (g)	0.9
Total Carbohydrates	8.1
Fiber (g)	1.5
Ash (g)	1.3
Food energy (cal)	52
Vit A (I.U.)	50
Thiamin(mg)	0.06
Calcium (mg)	278
Phosphorous (mg)	75
Iron (mg)	4.3
Carotene (I.U.)	300

With the potential of *himbabao* as food, research should focus on its propagation and utilization.

Uses/Importance

The tree itself is recommended for use in agroforestry; backyards; edible gardening; erosion control; farms; light shade for crops; living fence; living trellis; pioneer species for reforestation purpose; paper and pulp tree plantations; public spaces; riparian (an area which is the interface between land and a river or stream) management; roadside tree; urban greening; and wildcrafting.

Himbabao trees have been planted in Southern Luzon to shade *abaca* plants. The fibrous bark yields (inferior) rope.

The part of *alukon* or *himbabao* that is used as food is the flower spikes. It is used in meat and vegetable recipes such as *pinakbet*, *bulanglang* and stir-fries.

The wood of *himbabao* is used for paneling, furniture and cabinet work, gunstocks, musical instruments, pulpwood, firewood, butchers' block and boat planking.

The shoots, young leaves and inflorescence (from male trees) are cooked and eaten as vegetable.

Crop varieties

There is no known local variety of *himbabao* identified in the Philippines.

Cultivation

Propagation

Himbabao is generally propagated by seeds or by cuttings from mature branches with approximately 8 cm of diameter.

Climate and soil requirements

Himbabao is widely grown throughout the Philippines. It is commonly found in thickets and second-growth forests at low and medium altitudes, it can grow to almost all types of soil. But it is best grown in well-drained loamy and moderately fertile soil.

Land preparation and planting

During planting, hole is dug and should be deep enough to protect the plant roots. The area should be prepared and clean, remove weeds and other plant debris. The field is plowed and harrowed. *Himbabao* seedling is planted with 4m x 4m spacing between plants.

Fertilization

Organic fertilizer (Compost) and complete fertilizer (14-14-14) are applied during planting as basal. Use complete fertilizer for continued growth and higher percentage of survival. Succeeding fertilization should be done on the onset of the rainy season and during September and October or before the end of the rainy season.

Irrigation

Water the trees frequently especially during the first planting season to help develop the root system. For mature trees, water frequently especially when flowering. Irrigation can be complemented with mulching, good vegetation, or by shallow cultivation.

Weed Management

Make a periodic weeding (ring weeding) around the plant to free from vegetation during its first growing months and will last after 1 year. Weeding should be done during wet season and not during dry spell as it resulted to rapid evaporation of soil moisture.

Crop Protection

The most common pest of himbabao is aphids, mites, white flies and larva lipedopterants. Biological control and other eco-friendly pesticide can be used to control and manage this pest.

Harvesting

Branches that bear the flowers are cut from the tree before harvesting the flowers. Subsequently, the tree is able to grow new branches for the next flowering season.

Cost of Production and ROI per hectare

Requirement in the Establishment of a One-hectare Himbabao Production

1. Equipment and Tools

Quantity	Item	Unit price/(P)	Cost
1 unit	Knapsack sprayer	2,500.00	2,500.00
3 units	Hoe	300.00	900.00
1 unit	Grass cutter	15,000.00	15,000.00
3 units	Bolo	200.00	600.00
2 units	Spade	500.00	1000.00
1 unit	Weighing scale	1,200.00	1,200.00
Sub-total			21,200.00

2. Supplies and Materials

Quantity	Item	Unit price/(P)	Cost
650 pcs	Himbabao cuttings	10.00	6,500.00
1 roll	Plastic twine	120.00	120.00
2pcs	Meter stick	50.00	100.00
100pcs	Bamboo stakes	2.50	250.00
5 bags	14-14-14 (complete fertilizer)	1000.00	5000.00
5 bags	46-0-0 (Urea)	1000.00	5000.00
1 liter	Insecticide	1,200.00	1,200.00
1 kg	Fungicide	1,500.00	1,500.00
100 liters	Fuel	50.00	5,000.00
Sub-total			24,670.00

3. Labor

Activity	Man-Day (MD)	Unit Cost/(P)	Cost(P)
Plowing	8 MMD	500.00	4,000.00
Harrowing 2x	8MMD	500.00	4,000.00
Manure Application	2MD	250.00	500.00
Planting	5MD	250.00	1,250.00
<i>Pesticide and Fertilizer application</i>			
Basal	2MD	250.00	500.00
Side-Dress	5MD	250.00	1,250.00
Spraying	10MD	250.00	2,500.00
Weeding	10MD	250.00	2,500.00
Irrigation/Watering	20MD	250.00	5,000.00

Harvesting	50MD	250.00	12,000.00
Miscellaneous	20MD	250.00	5,000.00
Sub-total			38,500.00

Labor cost at Php 250.00/MD and 500 man machine per day

Summary of Cost of Establishment for a hectare of Himbabao

Particulars	Amount
Equipment and Tools	21,200.00
Supplies and materials	24,670.00
Labor	38,500.00
Total	84,370.00

Estimated Yield for a hectare of Himbabao

Harvest	Harvestable flowers(kg)	Gross Income (PhP)	Production cost (PhP)	Net income	ROI
1 st harvest	156.25	6,250	↓	↓	↓
2 nd harvest	312.5	12,500	↓	↓	↓
3 rd harvest	625.00	25,000	↓	↓	↓
4 th harvest	937.5	37,500	↓	↓	↓
5 th harvest	1,406.25	56,250	↓	↓	↓
Total	3,437.5	137,500	84,370	53,1300	62.97 %

Himbabao Recipes:

Bulanglang na Himbabao, Patani and Sitaw

Ingredients:

- 1 cup sitaw, cut about 2 inches long
- 1 cup himbabao, tough leaves, stalks and flowers removed
- 1 cup lima beans (patani), pods removed
- 1 onion, medium, sliced
- 1 ginger, about the size of thumb, big slices
- 2 ripe tomatoes, sliced
- 2 cups water

Procedure:

- 1) Bring water to boil.
 - 2) Drop all the ingredients and continue boiling for 10 to 15 minutes.
 - 3) Salt maybe added.
 - 4) You may adjust ingredients according to your taste preference. Other vegetables of choice can be added.
- The resulting dish has a very mild flavor. Not salty and not sour.



Black-Eyed Beans With Pork and Himbabao Flowers

Ingredients:

4 cups water
2 tablespoons cooking oil
1 teaspoon minced garlic
2 tablespoons sliced onion
½ cup sliced tomatoes
1 cup sliced pork
1 cup dried black-eyed beans, cooked
1 tablespoon salt
2 cups himbabao

Procedure:

Heat water. As soon as it boils, add beans and cook 2 minutes. Set aside for 1 hour. Sauté garlic, onion, tomatoes and pork. Add beans including broth. Boil, then simmer until almost soft. Season with salt, cook 4 minutes. Bring to a boil once more and add himbabao flowers. Cook 7 minutes longer. Serve hot. Makes six servings.

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