

COOKING WITH MANGROVES

36 INDONESIAN MANGROVE RECIPES

ADAPTED FROM YAYASAN MANGROVE BY MANGROVE ACTION PROJECT



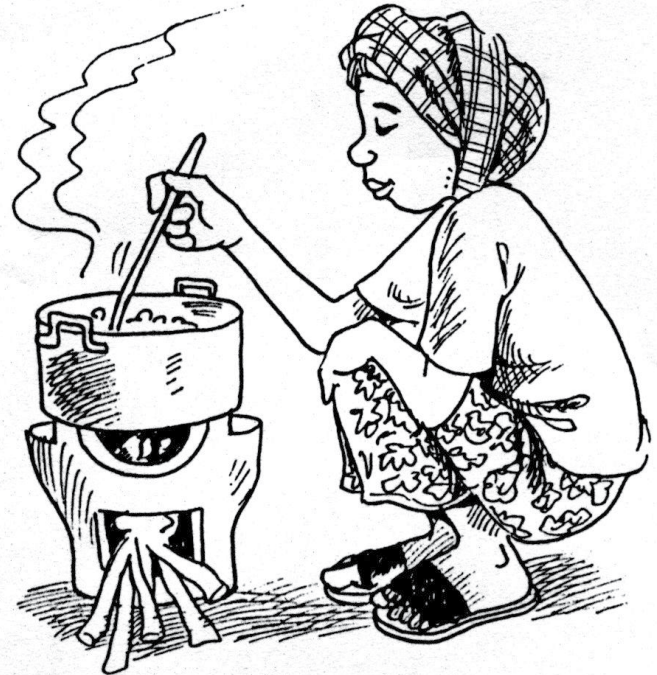


COOKING WITH MANGROVES
25 INDONESIAN MANGROVE RECIPES

ADAPTED WITH PERMISSION
FROM YAYASAN MANGROVE BY
MANGROVE ACTION PROJECT - INDONESIA

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Introduction

During MAP's years working in the mangroves of Indonesia, we had come across several instances of fisherfolk communities eating mangrove fruits and leaves for subsistence purposes. The most common being the fruit, of *Nypa fruitcans* but also ripe *Sonneratia caseolaris*. During World War II, there was much anecdotal evidence that isolated coastal communities had replaced staple foods with prepared *Avicennia spp.*, a phenomenea that reared its head again in Aceh sortly after the tsunami when whole islands were cut off from rice suppliers.

In order to promote non-timber forest products from mangroves, yet go beyond the few traditional recipes available for mangrove fruit, the Research and Development Institute on Mangroves (LPP Mangrove) sponsored a mangrove cooking contest in November, 1998. The idea was supported by Yayasan KEHATI, the Bekasi government and the Government Forestry Industry of Bogor (Perhutani KPH). Eight cooking teams from five villages participated in the contest, showcasing 25 different recipes. A resulting cook-book was published by LPP Mangrove to help promote the development of non-timber forest products for coastal communities across Indonesia. Many of the recipes in the original cookbook are incomplete, and in 2003 MAP-Indonesia contacted LPP Mangrove to ask permission to revise the cookbook, adding new recipes and attempting to test and complete recipes that were still confusing.

In order to discover new recipes, a study tour was arranged by MAP-Indonesia to send a small women's co-op from the Coastal Community Resource Center in Tiwoho, North Sulawesi to Balikpapan, East Kalimantan. The Kelompok Kreasi Mangrove Lestari Balikpapan (Mangrove Creation/Conservation Group) eagerly shared several new recipes for cakes and fish with the Sulawesi contingency. Upon returning to Sulawesi, the group developed a few of the Kalimantan recipes along with a recipe or two were also learned during the 8th In The Hands of the Fisherfolk Workshop in Koh Kong, Cambodia. During this workshop participants from Ban Pred Nai, Trad, Thailand demonstrated several innovative ways to use mangroves and mangrove herbs. These 10 recipes are added to the recipes from the mangrove cooking contest bringing the total number of recipes in this book to 36.

This book is still far from complete, but attempts to present interesting mangrove recipes prepared with an Indonesian pallete in mind. The empty pages at the end of the book are for recipes of your own, which we hope you will share with us. Who knows, the next edition may include mangrove recipes from around the world.

Salam lestari and selamat menikmati sajian kami 😊
(Happy conservation and hope you enjoy our dishes).

Ben Brown
Director - Mangrove Action Project - Indonesia

1. Mangrove Guava/Mangrove Apple - "Pidada," "Bogem," *Sonneratia caseolaris*, *Sonneratia alba*

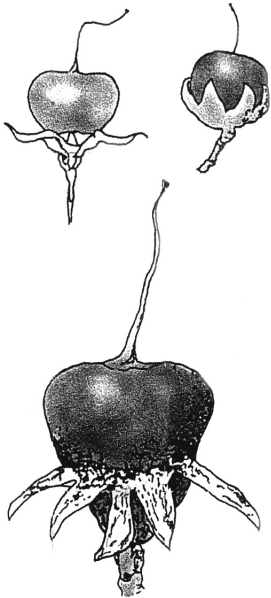
Three species of mangrove guava occur in Indonesia and one hybrid, of which *Sonneratia caseolaris* and *Sonneratia alba* are more commonly prepared as food items although all species are fit for consumption. Of these the most commonly used for food is *S. caseolaris* whose large fruit ripens and gives of a pungent sweet smell similar to that of the guava fruit. There is no special preparation for this fruit beside cleaning. Indeed this fruit can be eaten raw when ripe, and is sold with little processing as both juice and jam in Sri Lanka. The flavor turns sour when cooked.

Flowers and Fruit: *Sonneratia alba* has white flowers while *Sonneratia caseolaris* (illustrated) has red flowers. Flowers only open for one night. The fruit are large (4 cm wide) green, leathery berries with a star-shaped base.

2. Grey Mangrove - "Api-Api" *Avicennia* spp.

Called api-api (fire) throughout Indonesia for its brightly colored fluorescence the Grey Mangrove is the most widely distributed mangrove species in Indonesia and indeed worldwide mainly due to its tolerance of cool conditions and high dispersal ability. The fruit of the various *Avicennia* species may all be consumed but **require special preparation** (detailed on page 7)

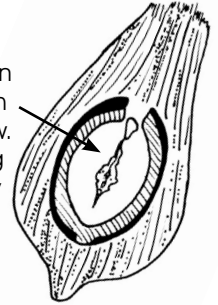
Flowers and Fruit: Small, pale orange flowers that are pollinated by bees and other insects. The fruits are almond sized, green and slightly furry. They mature in two months, ripening year round with peak seasons varying in different parts of Indonesia.





3. Mangrove Palm - "Nipah," "Bobo," "Atap" *Nypa fruticans*

The Nypa palm is the only palm to be found in mangrove forests. Its fruit is in the form of an impressive spiky head, about the size of a soccer ball, which breaks up after it ripens. The inner endosperm of the fruit can be eaten raw. In addition, sap can be collected from the stalk of the inflorescence during fruiting (recipe on page 33). The sap is used to make palm sugar, a honey substitute, a fresh drink, toddy (fermented) and vinegar and is a common traditional medicine.



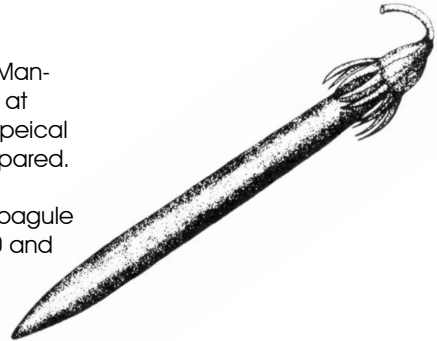
Flowers and Fruit: Flowers are yellow and arranged in a clump on a stalk which rises from the base of the plant. The seeds which make up the buoyant fruit are often found on Queensland beaches.



4. Large-leafed Orange Mangrove - "Tancang," "Makurung" *Bruguiera gymmnorrhiza*

This species and other *Bruguiera* species are related to the Red or Stilt Mangroves (*Rhizophora*). They may grow to 25 m tall, have large buttresses at the base of the trunk and knee roots. The fruit of this tree needs some special preparation due to high tannin content and should not be used unprepared.

Flowers and Fruit: The flowers are red and remain attached to the propagule when it falls. The propagules are green and cigar-shaped, between 10 and 20 cm long and can be found throughout the year.



5. Mangrove Fern - "Warakas," "Piyai" *Acrostichum aureum* and *A. speciosum*.

These are the the only ferns that inhabits the mangrove forest floor. Other ferns in mangrove forests are epiphytic (growing by attaching themselves to the trunks and branches of trees). The fiddleheads (young leaf fronds) of the mangrove fern are large, red to reddish yellow in color, succulent and delis-hous. They can be eaten raw, but are more often used in prepared steamed vegetable dishes in Indonesia such as "Urap" or "Globan"

Flowers and Fruit: Ferns do not have flowers or fruit but produce spores on the backs of their leaves throughout the year.



5. Mangrove Holly - "Drujon," "Jeruju," "Sari Munte" *Acanthus ilicifolius* and *A. ebracteatus*.

This prickly plant, which can grow to 2 m tall, often inhabits the soft, muddy soils of river banks. It can become dominant after clearing of mangrove forest areas. There are three known species of *Acanthus* in SE Asia. *Acanthus ilicifolius* and *A. ebracteatus* leaves are sold as herbal tea in Thailand (and now Indonesia) and have great medicinal value as tonics. Most often the non-spiny varieties of these plants are used as fodder for livestock, their nutritional value still relatively unknown in the majority of coastal communities.

Flowers and Fruit: Purple or white flowers that are pollinated by bees or small birds. The seed pod is a shiny green, oval shaped capsule that propels the seeds away from the plant using a spring loading mechanism.

Preperation of *Avicennia* spp. fruits for cooking

1. Use ripe *Avicennia* fruit. Ripe fruits are yellowish green in color. Ripe fruits are split and have seperated from the calyx. They can be collected from the ground or tree. Do not use fruit that have already developed roots.
2. Remove outer skin
3. Split into four pieces, remove the root bud/pistil
4. Boil *Avicennia* fruits in water and and ash, stir until ash is evenly spread.
5. Remove from heat and clean fruit until color is green.
6. Soak in clean fresh water for two days, changing water every 6 hours.

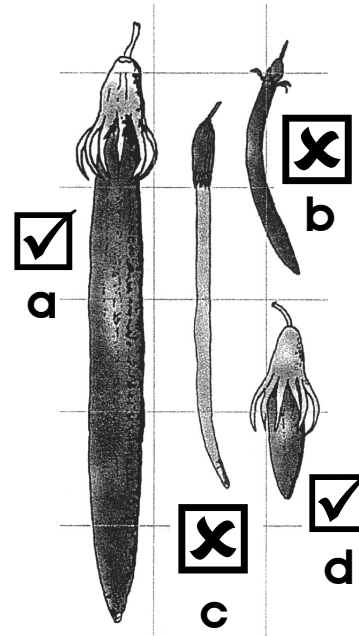
Alternatively you can peel the fruits, soak in water for 3 days, boil, and soak for another three days. During soaking the water is changed every 8 hours.

Note: In general, *Avicennia alba* is used for making flour for cakes and *Avicennia marina* for fried crackers.



Preparation of *Bruguiera* spp. fruits for cooking

1. Pick *Bruguiera* fruits from trees
Ripe fruits are greenish brown in color.
2. Remove calyx
3. Cut into inch long pieces
4. Soak fruits in clean fresh water for two days, changing water every 8 hours.
5. Boil
6. Soak in clean fresh water for two more days, changing water every 8 hours.



- a - *Bruguiera gymnorrhiza* (ok to eat)
b - *Bruguiera parviflora* (not for consumption)
c - *Bruguiera cylindrica* (not for consumption)
d - *Bruguiera sexangula* (ok to eat)

Making coconut milk

1. Open da' coconut
2. Grate the coconut meat
3. Mix with a little clean water, press/squeeze above a strainer. Add a little more water to the grated coconut, squeeze again. Do it until you have a bowl full of coconut milk. This first pressing is the THICK coconut milk and is usually added to recipes toward the end of cooking.
4. Press the grated coconut a second time with water. This second bowl of coconut milk is THIN coconut milk and is used at the start of cooking.

Some recipes only call for thin or thick coconut milk.

Canned coconut milk is condensed/very thick and can be cut with a significant amount of water to make THIN coconut milk and less water to make THICK coconut milk.



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Bolu Api-Api (Avicennia Spongecake)

Bolu is a type of traditional spongecake.

Ingredients

- 200 grams of prepared Avicennia fruit (see preparation of Avicennia, section 2)
- 4 eggs
- 200 grams of granulated sugar
- 100 grams flour
- 100 grams margarine
- 1/2 teaspoon vanilla

Preparation

Steam the Avicennia fruits and then pound or blend in a blender. Separate eggs. Beat egg yolks together with sugar until well mixed. Beat egg whites separately until thick. Mix both egg mixtures together, add flour, blended Avicennia fruit and vanilla. Stir. Add melted margarine or butter. Place in a greased baking dish and bake at low temperature until done.

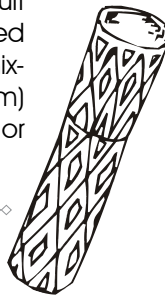
Alternate recipe

Ingredients

- 300 grams prepared Avicennia fruit (blended)
- 250 grams granulated sugar
- 250 grams wheat flour
- 7 eggs
- 1 teaspoon baking soda
- 1/2 teaspoon vanilla extract
- 200 grams of butter or margarine

Preparation

Mix eggs, sugar and until fluffy (20 minutes). Melt the butter, Add blended Avicennia fruit and flour and continue mixing. Add melted butter/margarine, and vanilla. Mix. Pour mixture into greased baking dish (22cm x 20 cm) and bake at 300°F for about 30 minutes or until done.



Bolu Agar-Agar Api-Api (Avicennia Agar Agar cake)

This "cake" differs from Bolu on the previous page in that it uses agar-agar in the recipe. Truly a coastal dessert.

Ingredients

- 250 grams prepared Avicennia fruit (blended)
- 1/4 kg flour
- 4 eggs
- 14 kg granulated sugar
- 1 package of agar agar
- 1/2 teaspoon vanilla extract
- 1/2 teaspoon baking powder
- 1/2 teaspoon baking soda
- pandan (*Pandanus odurus*) leaf paste
- 1 tablespoon margarine/butter

Preparation

Stir half of the sugar, baking powder, TBM, eggs and vanilla until fluffy. Add blended Avicennia fruit and stir until well mixed. Add 1/2 cup of flour and melted margarine/butter, stir. Add pandan leaf paste or extract and stir evenly. Place the mixture in a baking dish and cook at 325°F until done. Cool.

Dissolve agar agar and leftover sugar in 3 cups of warm water. Pour on top of cooled cake.





Onde-Onde Api-Api (Round Fried Avicennia Cakes)

Onde onde is a very common sweet in Indonesia made of rice flour or tapioca. It is always a round ball in shape, often coated with sesame seeds and filled with palm sugar. There is a joke that when trying to recreate the onde onde, the Dutch colonialists grew frustrated placing each individual sea-same seed on the outside of the cakes.

Ingredients

- 1 kg Prepared Avicennia fruit
- Meat from half a coconut
- 1/4 kg Sagu flour
- 1/2 kg Palm Sugar

Preparation

Pound prepared Avicennia fruit and add to sagu flour. Stir until batter is smooth. Form the batter into balls with a chunk of palm sugar inside the size of a large pea or small marble. Steam these in a bamboo steamer or other steamer. Remove from steamer and drain. Top with grated coconut and serve.

Alternate recipe

Ingredients

- 1500 grams prepared Avicennia fruit (blended)
- 1000 grams palm sugar
- 500 grams glutinous rice flour
- 250 grams rice flour
- 2 grated coconuts
- salt to taste
- edible lime chalk

Preparation

Mix rice flour, glutinous rice flour, salt and lime in a bowl with the blended fruits until you are able to form small balls with the dough. The balls should be about 5 cm in diameter. Fill the center of the balls with palm sugar. Place balls in boiling water. When they float to the surface, remove and drain. Roll in shredded coconut and serve.



Ketimus Api-Api

Ketimus is a Javanese cake traditionally made of corn or cassava with coconut and palm sugar. In this recipe the Avicennia fruits are used as the starch substitute for corn or cassava.

Ingredients

- 200 grams of prepared and blended Avicennia fruit
- 100 grams of tapioca
- 1/2 cup of palm sugar
- grated coconut meat from 1/4 coconut

Preparation

Mix all of the ingredients in a large bowl. Wrap in banana leaves in a pyramid shape. Steam until cooked. Open the leaves and add extra grated coconut.





Bingka Api-Api (Avicennia Bundt Cake)

Bingka is a hemispherical-shaped cake (bundt cake) of leavened rice flour.

Ingredients

- 500 g Prepared Avicennia fruit (blended)
- 500 g wheat flour
- milk from 1 coconut
- 1/2 teaspoon salt
- 500 g palm sugar
- 1 egg

Topping

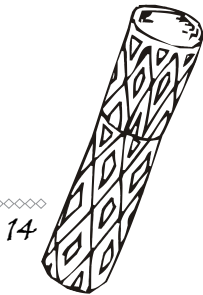
- 1 tablespoon cornmeal
- milk from 1/2 coconut
- 1/2 teaspoon salt

Preparation

Heat milk from 1 coconut in a pot, stirring constantly until thick with a wooden spoon. Add flour, palm sugar, salt and egg into the heated coconut milk. Stir and cook an additional 10 minutes. Remove from heat.

Preheat oven and grease a bundt cake baking pan. Pour mixture into bundt dish.

Separately, heat coconut milk from 1/2 coconut in a pot until thick. Add cornmeal and salt. Pour on top of cake mixture. Bake at medium heat for 15 minutes. Cool and slice. It's a bundt, but it's really a hit!



Lala Api-Api

Lala is a type of porridge from Sulawesi. Good for the youngsters!

Ingredients

- 300 g prepared Avicennia fruit (whole)
- milk from one coconut (300ml)
- 2 tablespoons cornstarch
- 1 tablespoon ground pepper (white or black)
- salt to taste

Preparation

Wash and drain the Avicennia fruits and blend.

Heat the coconut milk stirring with a wooden spoon.

Dissolve the corn starch in a little water

Mix corn starch, pepper and salt in the coconut milk and stir.

Add blended Avicennia fruit into the mixture and continue to heat until thick and consistent.

Remove from heat and let cool for 10 minutes.

Serve with fried Acanthus crackers.





Dawet Ayu Api-Api

This is a popular iced drink, the traditional mangrove equivalent of Bubble Tea.

Ingredients

- 150 grams prepared Avicennia fruit (blended)
- 4 tablespoons of "tepung sago aren" which is a flour of sago palm mixed with sugar palm
- 150 grams of palm sugar
- 1 cup of thick coconut milk
- 1 cup of thin coconut milk (from the second pressing)
- 4 kaffir lime leaves
- salt to taste

Preparation

Mix Avicennia fruit and flour until even. Boil a pot of water and dribble little pieces of the batter in the boiling water. When the pieces float to the surface, scoop off with a wire sieve and drop in cool water.

Boil palm sugar, thin coconut milk and lime leaves until thickened. Let cool.

Heat thick coconut milk separately but do not boil. Let cool.

Fill a glass with ice. Put sugar/thin coconut milk mixture in a glass. Add pieces of the cooked Avicennia/flour mixture to the glass. Add thick coconut milk. Serve.



Avicennia Combro

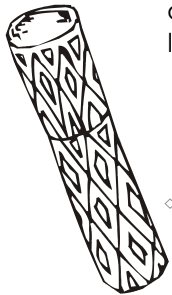
This is a traditional snack the size and shape of a springroll.

Ingredients

- 300 grams prepared Avicennia fruit
- 1 spring onion/green onion
- 250 grams Oncom (fermented cake made from soybean sediment)
- 2 mild chilli peppers
- 3 small spicy chillis
- 3 cloves of shallots
- 100 grams wheat flour
- 2 tablespoons butter or margarine
- 1 bunch celery leaves or 1 cup finely chopped celery stalks
- 250 grams chopped shrimp
- sugar and salt to taste

Preparation

Peel and clean the Avicennia fruit, boil and mix with ash. Wash again until clean. Soak for two days in fresh water, changing when necessary. Slice the fruit in thin pieces and steam. Then pound the fruit and mix with all other ingredients in a blender. Form long pieces of the mixture the size of a small eggroll. Deep fry and serve.





Kripik Manis Muah Api-Api (Sweet Avicennia Crisps)

Ingredients

- 500 grams avicennia fruits
- 150 grams granulated sugar
- water
- 1/4 kg vegetable oil

Preparation

Steam Avicennia fruits, pound flat and sun dry. Fry in hot oil. Remove from oil and dip in sugar with a small amount of water.



Kripik Asin Buah Api-Api (Salty Avicennia Crisps)

Ingredients

- 500 grams avicennia fruits
- iodized salt
- 1/4 kg vegetable oil

Preparation

Steam Avicennia fruits, pound flat and sun dry. Fry in hot oil. Remove from oil and sprinkle with salt.



Avicennia Crisps

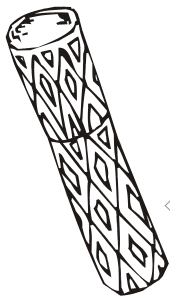
Ingredients

- 200 grams prepared Avicennia fruit (sliced thin)
- 50 grams palm sugar
- 50 grams granulated sugar
- vegetable oil
- salt to taste

Preparation

Peel fresh-picked Avicennia fruits and then boil in water mixed with ash (from a cooking fire). remove from heat and clean with fresh water. Soak in fresh water for 2 days. Remove from water and slice thin. Place in direct sunlight until completely dry.

Fry dried Avicennia fruits in cooking oil until dry and crisps. Remove from oil. Heat both sugars and salt in a large wok, mixing constantly. Add fried Avicennia crisps to mixture. Cool and serve.



Alternative Recipe

Ingredients

- 300 grams prepared Avicennia fruit (whole)
- 1 clove of garlic
- seasoning salt

Preparation

Boil the fruit until soft, drain and pat dry. Pound the garlic into a paste with the salt. Heat cooking oil in a wok. Fry the Avicennia fruits and drain. Mix with garlic/salt mixture. Cool and serve.





Kue Talam Api-Api (Avicennia Sheet Cake)

Ingredients

- 1/2 kg of prepared Avicennia fruit (blended)
- 1/4 kg sago palm flour
- 1 kg rice flour
- 1 cup grated coconut meat
- 1 cup shallots
- 1/2 kg palm sugar
- vegetable oil
- salt to taste

Preparation

Mix rice flour, sago palm flour and Avicennia fruit in large bowl. Spread out on a shallow baking sheet and steam until half-cooked.

Slice shallots very thin and fry in vegetable oil. Also fry grated coconut meat in oil. Sprinkle on sheet cake and place baking sheet in oven and bake at low heat until done.



Kue Talam Manis Api-api (Sweet Avicennia Sheet Cake)

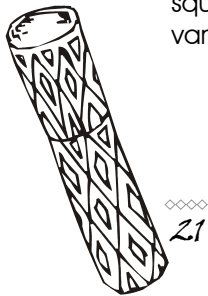
Ingredients

- 1 kg of prepared Avicennia fruit
- 1/2 kg Sago palm flour
- 1/4 kg Rice Flour - 50 grams flour
- 1 coconut
- 1 tablespoon pandan (*Pandanus odurus*) leaves
- 1/2 tablespoon vanilla extract
- 1/2 kg granulated sugar
- salt to taste

Preparation

Peel the Avicennia fruit, steam and then soak for 2 nights changing water every 6-12 hours. Add the sago and rice flour.

Grate the coconut and prepare coconut milk by adding water and squeezing the moist grated coconut over a strainer. Add sugar, salt, vanilla and pandan leaves to the coconut milk.





Gemblong Api - Api

Ingredients

- 250 grams of prepared Avicennia fruit
- 2 tablespoons granulated sugar
- 350 grams of grated coconut
- 50 grams flour
- 250 grams vegetable oil
- salt to taste
- water

Preparation

Steam and blend the Avicennia fruit. Mix the blended fruit with flour, coconut, salt and water until the mixture reaches a doughy consistency. Role the mixture in 1 cm diameter pieces, cut 8 cm long and then spit and open (butterfly). Heat oil in a wok and then fry pieces until golden. Remove fried cakes from oil and roll in sugar. Cool and serve.



Avicennia Pudding

Ingredients

- 300 grams of prepared Avicennia fruit (blended)
- 400 grams granulated sugar
- 5 cups of thick coconut milk
- 2 eggs
- 2 packages of agar agar
- 1 teaspoon vanilla extract
- salt to taste

Preparation

Bring sugar, agar-agar and santan to a boil. Mix in blended Avicennia fruit. Add eggs. Stir it up! Pour into a baking dish or gelatin mold and chill out!

Alternate recipe

Ingredients

- 300 grams of prepared Avicennia fruit (blended)
- 400 grams granulated sugar
- coconut milk (thick) from 1 coconut
- 2 packages of green agar agar
- 1/2 teaspoon salt
- 2 eggs

Preparation

Boil coconut milk. Add sugar and salt and stir. Add blended Avicennia fruit and stir. Remove from heat and cool.

Beat two eggs seperately. Add to cooled pudding mixture and mix thoroughly. Pour into a mold and allow to harden.





Avicennia Candil

Ingredients

- 1 kg Prepared Avicennia fruits
- 1/4kg Sago flour
- 1/4 kg Palm sugar
- coconut milk from 1/2 coconut
- pandan (Pandanus odurus) leaves

Preparation

Pound the Avicennia fruits or use a blender. Mix with Sago flour, and form into little balls (the size of golf balls). Heat the sugar and coconut milk with pandan leaves and then add the Avicennia balls into the coconut milk mixture over a low flame until reaching a low boil. Remove from flame, cool and serve.



Urap Piyai (Steamed *Acrostichum aureum* (Mangrove Fern) Fiddleheads with Grated Coconut and Spices)

Urap is a steamed, boiled or sauteed vegetable dish served hot, usually with bean sprouts, spinach, water spinach (kangkung or on choy), and other leafy vegetables. It is then served with a spicy peanut sauce, or sauteed lightly in coconut oil with chillis. This recipe uses the bright red, soft fiddleheads from *Acrostichum aureum*, and another herb, Beluntas (*Pluchea indica*) which is commonly found in coastal villages in Indonesia.

Ingredients

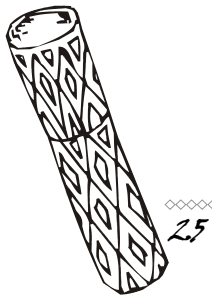
- 1 bunch of *Acrostichum aureum* fiddleheads
- 1 small bunch of Beluntas leaves
- 1 bunch spinach
- 1 bunch kangkung
- 5 shallots
- 1/2 coconut (grated)
- 4 tablespoons coconut oil
- chilli peppers (if desired)
- salt to taste

Preparation

Clean all the leafy material. Boil. Put aside. Slice shallots thin. Split chillis and remove seeds. Dice chillis. Lightly saute shallots, chillis, grated coconut and salt remaining ingredients in coconut oil. Mix with boiled leafy material and serve hot on a banana leaf.]

or

Mix shallots, chillis, grated coconut and salt in a bowl and wrap mixture in banana leaves. Steam. Mix with boiled leafy material and serve hot on a banana leaf





Sonneratia Wajit (Sticky Mangrove Apples)

Ingredients

- 18 ripe *Sonneratia caseolaris* (or *S. ovata*) fruits
- 1/2 kg granulated sugar
- 1 cup sago flour
- 1 package of red agar agar

Preparation

Peel the *Sonneratia* fruits and discard most of the seeds. Mix the sago flour with 2 cups of cold water and strain the water off saving the water.

Mix the sugar, *sonneratia* fruit, and sago water until even, then pur contents into a wok and cook on low heat.

Halfway through the cooking process add the agar agar powder slowly and stir evenly until thick.

Cool and wrap in wax paper.



Sonneratia Lempok (Candied Mangrove Apples)

Ingredients

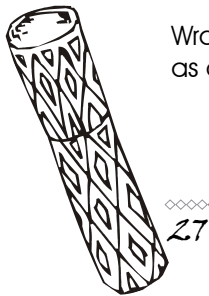
- 1 kg ripe *Sonneratia caseolaris* (or *S. ovata*) fruits (peeled)
- 1/2 kg granulated sugar
- 1 tablespoon vanilla extract
- 1/2 teaspoon salt
- 3 liters water

Preparation

Peel the Sonenratia fruits and discard most of the seeds. Clean with water. Mix with water and blend in blender. Strain off remainnig seeds. Strain again and use only the juice to mix with sugar, vanilla and salt.

Place in a pot and cook over medium heat until thick. Remove from heat. Form little balls of the mixture and sprinkle with granulated sugar.

Wrap in banana leaves or plastic. Use the calyx/bract of the Sonneratia fruit as a cap for the sweet.





Sonneratia Juice (Mangrove Apple Juice)

Ingredients

- Ripe Sonneratia caseolaris fruits

Preparation

These can be place directly in a juicer, or in a blender with ice and water and then strained.

Add sugar to taste. Garnish with mint leaf.



Sonneratia Juice Cocktail

Ingredients

- 1 ripe Sonneratia caseolaris fruit
- Granulated sugar
- Ice
- Small bottle of Sprite

Preparation

Same as above but add Sprite to the juice after blending.

This is a common way to drink Sonneratia in coastal villages today.



Bruguiera Wajit

Ingredients

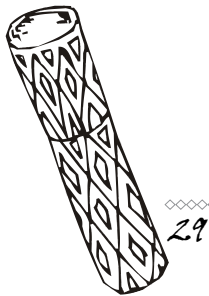
- 10 ripe *Bruguiera gymnorhiza* fruits
- 1/2 kg granulated sugar
- 1 cup sago flour
- 1 package of red agar agar

Preparation

Clean the *Bruguiera* fruits, cut into small pieces and blend.

Mix the sago flour with 2 cups of cold water and strain the water off saving the water. Mix the sugar, *Bruguiera* fruit, and sago water until even, then pour contents into a wok and cook on low heat.

Halfway through the cooking process add the agar agar powder slowly and stir evenly until thick. Cool and wrap in wax paper.





Permen Pidada (Sonneratia Candies)

Ingredients

- 10 *Sonneratia caseolaris* fruits (ripe)
- 1/2 kg granulated sugar
- 1 package agar-agar

Preparation

Clean and dice the ripe *Sonneratia* fruit (mangrove apples). Mix all ingredients and boil in water (follow the directions on the agar-agar package). Cool in small formed molds or wrap in waxed paper.



Kue Bugis Api-Api (Avicennia Bugis Cake)

The Bugis are famous sailors of South Sulawesi, fierce in battle, this ethnic group gives rise to the ubiquitous Boogey Man of children's nightmares. Don't worry, the cake is much more benign than its namesake.

Ingredients

- 1 kg prepared Avicennia fruit
- 1 kg Palm Sugar
- 1 coconut
- 1/4 kg Sago palm flour

Preparation

Pulverize the Avicennia fruit and mix evenly with the Sago flour.

Grate the entire coconut, mix with palm sugar and warm on low heat in a wok. Remove from heat. Form small marble size balls out of the sugar/coconut mixture.

Place wax paper or plastic on a table. take small pieces of the Avicennia/Flour mixture and form thick circles on the wax paper the size coke can. Place the marble size sugar/coconut ball inside and fold the Avicennia/Flour circle around the marble to make a larger ball the size of a golf ball.

Steam these yummygolf balls for about 7 mintues and serve hot or cool.





Kolak (*Avicennia* spp. or *Brugueira gymnorrhiza*)

Kolak is a sweet soup like desert, usually made with cassava or sweet potatoe and cooking bananas. In this recipe, *Avicennia* fruits or *Brugeira* fruits are used instead. This is the famous dish that is used to break the fast each evening during the month of Ramadan, especially common in Sumatera.

Ingredients

- 1/4 kg prepared *Avicennia* fruits. (boiled again after being processed)
and/or
- 1/4 kilogram *Brugueira gymnorrhiza* fruits (boiled)
- 1/4 kg sagu flour
- 1 liter thin coconut milk
- 1 cup thick coconut milk
- two pandan (*Pandanus odurus*) leaves
- 1/4 kg granualted sugar

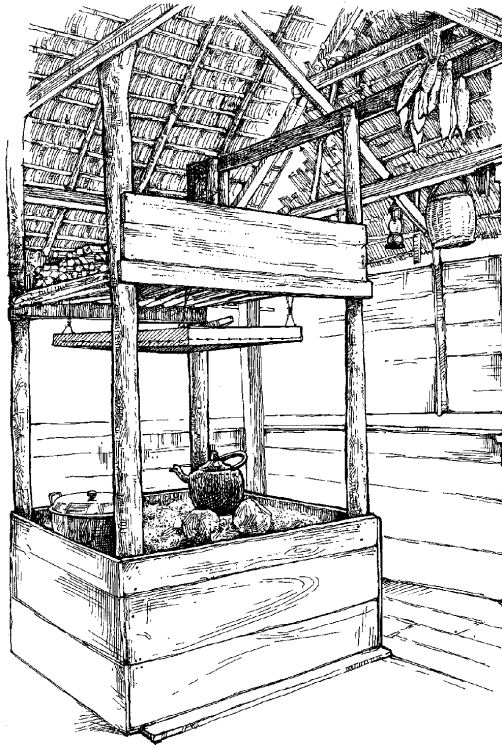
Preparation

If using *Avicennia* fruits, make sure they are fully processed as instructed on page 8 and use whole. If using *Brugeira* fruits, cut into 1 inch pieces. Add fruit to sagu flour and stir.

Boil 1 liter of coconut milk (thin) with sugar. Add pandan leaves after reaching a boil. Add sagu/ fruit mixture and continue to boil until fruits soften. Remove from heat. Add thick coconut milk. Serve hot or cold.



Kue jalabia goreng

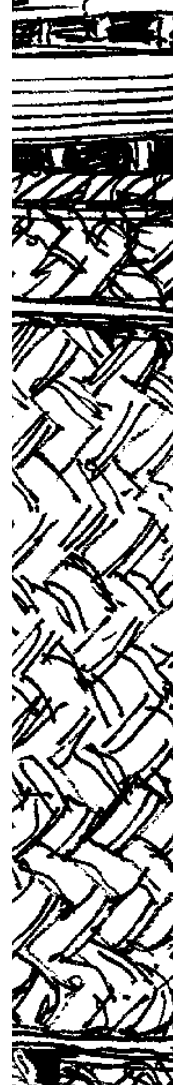


Ingredients

- 200 grams prepared Avicennia fruit (blended)
- 100 grams flour
- 100 grams granulated sugar
- salt to taste
- vegetable oil

Preparation

Mix Avicennia fruit, flour, salt and half the sugar (50 grams) in a large bowl. Shape into any shape you wish (crescents, round...) and fry in cooking oil until done. Take out of oil, roll in granulated sugar and fry again.





Sonneratia Dodol

Dodol is a type of taffy made of sticky rice, coconut milk, and palm sugar

Ingredients

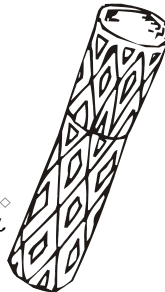
- 250 grams rice flour
- 1/4 kg sticky/glutinous rice flour (beras ketan)
- 1 1/2 kg palm sugar
- 2 coconuts
- 8 ripe *Sonneratia caseolaris* fruits (mangrove apples)

Preparation

Mix rice flour and sticky rice flour in a bowl and blend in coconut milk from 2 coconuts. Pulverize or blend the *Sonneratia* fruits. Put flour mixture and fruit in a wok and cook on low heat. Grate palm sugar and thicken in water over low heat. Add thickened palm sugar to the rice, coconut and fruit mixture and stir until even and fully cooked. Remove from heat and partially cool. Form into eggroll sized tubes wrapped in banana leaves or waxed paper and cool fully.



Banana Leaves



Nypa Sugar

Ingredients

Fresh sap from inflorescence of *Nypa fruticans*
Bark from *Cerriops tagal* or Roots of *Morinda citrifolia* (Noni)

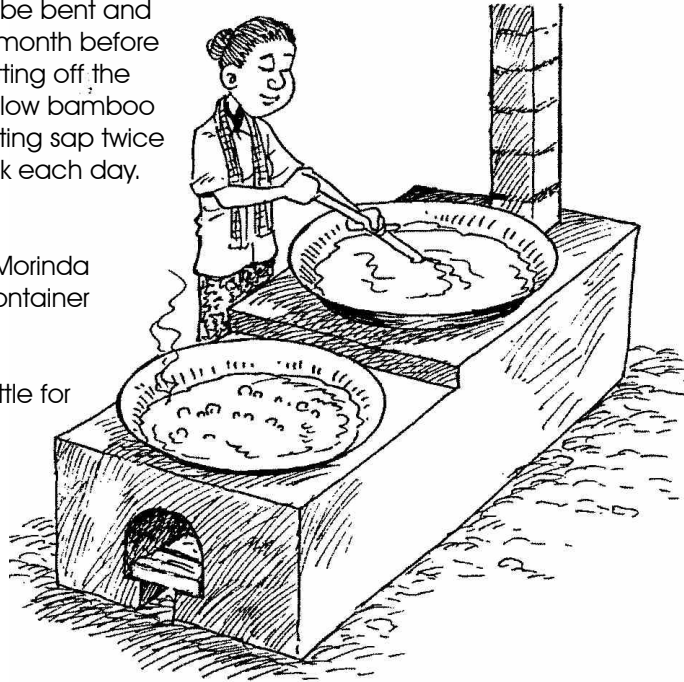
Preparation

The stalk from a fruiting *Nypa* needs to be bent and beat with a large stick every day for a month before sap collection. Sap is collected by cutting off the fruiting head, hanging a bottle or a hollow bamboo internode from the stalk tip, and collecting sap twice a day, slicing a thin piece from the stalk each day. Collection lasts 2 months.

The bark from *Cerriops tagal* or root of *Morinda citrifolia* are placed in the collection container to retard fermentation.

The sap can be drunk as is, left in a bottle for 44 days to be used as vinegar or slowly cooked to produce palm sugar.

The palm sugar is cooled in coconut shell halves lined with wax paper.





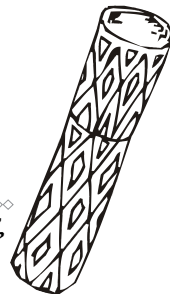
Nypah Wajit

Ingredients

- 1 whole ripe nypah fruit
- 1/4 kg of palm sugar
- 2 tablespoons granulated sugar
- 3 large fingers of ginger
- 1 piece of coconut the size of your thumb

Preparation

Open the individual Nypah seed pods to get at the fruit inside. Separate the fruit from the single seed inside. Grate the Nypah fruit, coconut and ginger. Boil the palm sugar in a cup of water, strain and add to the grated mixture. Toss and add salt to taste.



Nypa Fuit Kolak

Kolak is a sweet compote made of starchy fruits (cassava, bananas, etc.) stewed in coconut milk and sugar. Although eaten anytime, it is traditionally served at sundown to break the daily fast during the month of Ramadan.



Ingredients

- 1 whole ripe nypah fruit
- 1/4 of a coconut
- 1/4 kg of palm sugar
- 3 large fingers of ginger
- salt to taste

Preparation

Open the individual Nypah seed pods to get at the fruit inside. Sperate the fruit from the single seed inside. Boil the fruit. Grate the coconut and press the meat with water over a strainer to get coconut milk. Mix the coconut milk, boiled nypah fruit, and sugar. Add salt to taste. The consistency shold be soupy with floating pieces of nypah fruit. You can add boiled banana, sweet potato and jack-fruit to the mixture if desired.





***Acanthus ilicifolius* Tea**

We stumbled upon this product in some alternative medicine stores in Southern Thailand. MAP-Indonesia has developed a solar drying hut for use in drying the leaves to a consistent humidity.

Acanthus ilicifolius tea is a general tonic, and is safe to drink every day. It is best served like green tea, without sugar or other sweeteners. It is also best not to come in contact with metal (such as spoons) or some of the medicinal qualities may be lost.

The tea is an antioxidant and is used traditionally as an anti-allergen, for boil treatment of boils or abscesses, to guard against infection and to expel kidney stones.

Ingredients

- 97% Holly mangrove (*Acanthus ilicifolius*) leaves
- 3% Pandan (*Pandanus amaryllifolius*) leaves

Preparation

Cut thorns off of the leaves. Dry in sun with the Pandan leaves.
Chop leaves into fine pieces or grind.
Continuing drying under controlled conditions if possible.

Serve like green tea.

We use a solar dryer which is a solar heating plate attached to a drying house made of bamboo with strategic ventilation to ensure consistent internal temperature and humidity.

The solar heating plate can be made of a corrugated iron sheet in a plywood box with a glass cover. The iron sheet is covered with a wire mesh on the upper surface and painted black. The solar panel is connected to the small hut with a pipe. Racks are built into the hut with holes allowing for even air flow. Two exhaust chimneys are built into the roof.



***Acanthus ilicifolius* Crackers**

Fried crackers are called krupuk in Indonesia and are made in a variety of shapes, sizes, colors and flavors. These krupuk use broth from *Acanthus* leaves to add both color and flavour.

Ingredients:

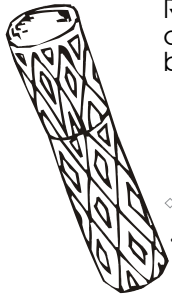
- 1 kg flour (cassava or sago palm)
- 1 clove garlic
- 1 ½ teaspoons salt
- 1 ½ teaspoons sugar
- ½ teaspoon baking soda
- 1 teaspoon black pepper powder
- 300 grams of *Acanthus ilicifolius* or *A. ebractateus* leaves.
- banana leaves for wrapping

Preparation

Remove spines from *Acanthus* leaves. Chop leaves very fine and boil in a liter of water for 3 minutes. Strain the greenish water from the leaves. Use only the water.

Little by little add greenish water to 1 kilogram of flour while stirring the flour mixture. Add the salt, sugar, pepper, and baking soda. Pound the garlic and add to the mixture. When the flour mixture has cooled down a bit, form into a dough with your hands.

Roll the dough into a piece of banana leaf and tie off the ends with some string or plastic or a flexible twig. Steam the rolled dough in a pot (put some water under a rice sieve and boil the water) for one full hour.





***Acanthus ilicifolius* Crackers (cont'd)**

Let the whole thing sit overnight (can be refrigerated). In the morning open the banana leaves and slice the dough into thin silver dollar size pieces.

Place on a tray and let dry in the sun for the whole morning until hard.

After drying in the sun they are ready to fry in hot oil in a wok by placing a few pieces in at a time and turn them over after 5 seconds.

The *Acanthus* crackers can be packaged dried before frying, allowing the consumer to cook the crackers themselves. This adds significantly to the shelf life of the Krupuk from several weeks to several months.



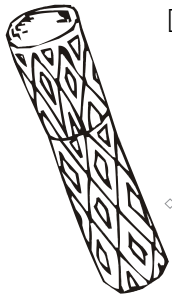
A Note on Sustainable Harvest

Mangrove Action Project is promoting the development of Non-Timber Forest Products as an attempt to increase the direct economic value of mangrove forests, particularly in the perception of fisherfolk communities. The development Non-Timber Forest Products is at once an affirmation of the worth of a healthy forest, and also an intrinsic, straight forward reason for the protection of mangrove forests.

Nonetheless, even harvest of fruits and herbs from mangroves is not benign. Over-harvest of mangrove propagules could put future generations of the forest at risk. Likewise, tapping the economic potential of a mangrove herb such as *Acanthus ilicifolius* could lead to over-harvest in the same way that fisheries products are overharvested leading to local extinctions of species once abundant and assumed "limitless"

Some simple rules of thumb to avoid over-harvesting

- When harvesting propagules/fruits from trees pick only mature fruits, leave at least 2/3 of the propagules on each tree, avoid damaging branches and new forming fruits.
- When harvesting *Acanthus* leaves, use a pair of garden shears/clippers and cut off leaves or stems only. Do not uproot the entire plant, in order that the plant can continue to grow and produce new leaves.
- Only pick what you can process.

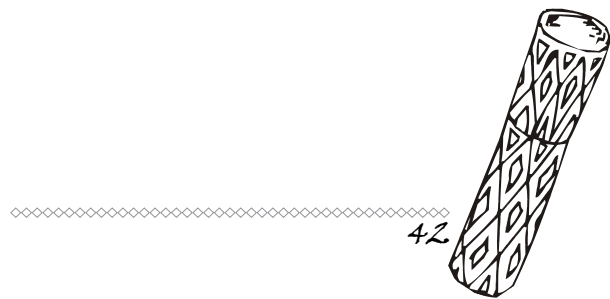




Home-made Recipes:

Ingredients:

Preparation:



Home-made Recipes:

Ingredients:

Preparation:



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Home-made Recipes:

Ingredients:

Preparation:

