

Book of Specification
Protected Geographical Indication

Mondulkiri Wild Honey



Prepared by: Mondulkiri Wild Bee Conservation Association

Mondulkiri, 18th of Sept 2023

Book of Specification of Mondulkiri Wild Honey

1. Applicant

Mondulkiri Wild Bee Conservation Association (MWBCA)

- Officially registered at the Ministry of Interior, Prakas No. 12726, on December 19, 2019.
- Address: Putang Village, Pu Chrey Commune, Pech Chreada District, Mondulkiri Province
- Telephone: 088 85 800 38 / 097 54 85 331
- Email: mwbcahoney@gmail.com

2. Name of Product

- Khmer: ម៉ឺកបុំរំពេមណ្ឌលកែវ
- English: Mondulkiri Wild Honey

3. Type of Product

Natural wild honey, and sustainably collected from the wild *Apis dorsata* bee (English name: Asian Giant Honeybee) in the natural forest without pasteurized and heated.

4. Product Description

Mondulkiri wild honey has 03 types as below:



Extra light amber



Light amber



Dark amber

Texture: liquid but can crystallize partially or completely.

Aroma: very fragrant with the smell of mixed forest flowers and pollen.

Flavor: slightly sweet with the taste of forest flowers and pollen.

Moisture:

< 24% before dehumidification

< 20% after dehumidification

The final product must keep moisture content below 20%.

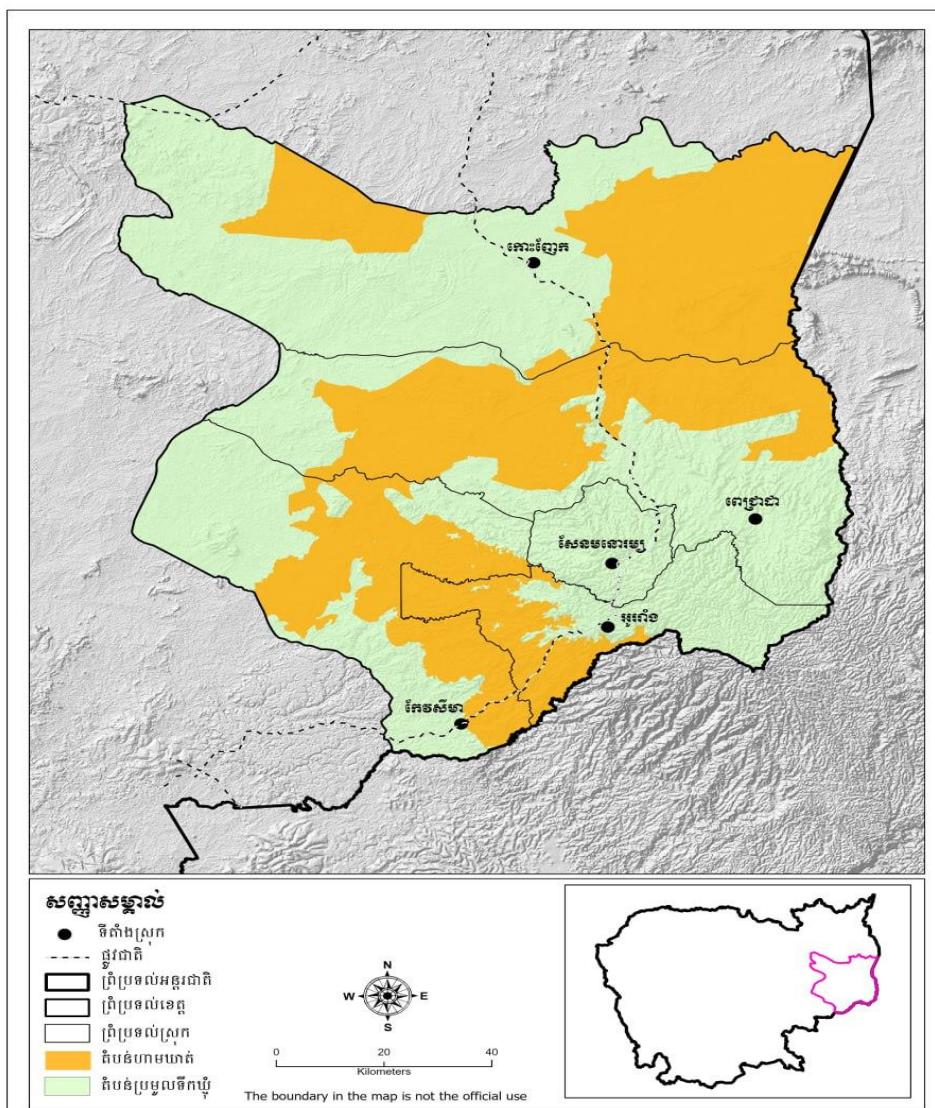
Floral origin: dry season multi-floral honey from the evergreen, semi-evergreen, and savannah forests of Mondulkiri.

Raw: Mondulkiri Wild Honey is not pasteurized (heated).

5. Geographical Area and Proof of Product Origin

5.1 Geographical Area

The areas where Mondulkiri wild honey is collected must be in the following districts and cities in Mondulkiri province such as Kaoh Nheaek District, Pech Chreada District, Ou Reang District, Kaov Seima District, Krong Senmonorum.



Note: The collection of Mondulkiri wild honey must follow the BoS and the law of natural protected areas.

5.2 Proof of Product Origin

To collect, process, and package wild honey under the name of “**Mondulkiri Wild Honey**”, honey collectors and operators must register as a member of “**Mondulkiri Wild Bee Conservation Association**”. Honey collectors and operators must declare and record the amount of honey collected, processed, packaged, purchased, and sold. A traceability system (Recording book and internal control system) is developed to track the honey products since it is collected from the forest until it is sold on the markets.

Product samples will be randomly selected to check the quality of "Mondulkiri Wild Honey" compared with the criteria determined by the uniqueness of "Mondulkiri wild honey" mentioned in article 4 above.

6. Honey Collection, Processing, and Packaging Techniques

6.1 Bee management

6.1.1 Bee species

- *Apis dorsata* (Asian Giant Honeybee): "Chhut Toroves" or "Chhut Tong" in the local language.



- The nest of *Apis dorsata* comprises 3 parts: (1) the brood, or baby bees; (2) the pollen store and; (3) the honey store.



6.1.2 Wild Bee Habitat Preservation Measures

- Must protect the biodiversity in the community forestry where *Apis dorsata* colonies nest within the delimitation area (mentioned in article 5.1 above).
- Must not be involved in any activities that affect the populations of *Apis dorsata* and its habitat (forests where the colonies nest and forage)
- The activities that must not be involved include illegal logging, forest fires, use of chemical pesticides, and harvesting the bee broods for consumption and trading.

6.2 Honey collection and post-harvest

6.2.1 Harvested bees

- Mondulkiri wild honey is exclusively collected from *Apis dorsata* (Asian giant honeybee): “Chhut Toroves” or “Chhut Tong” in the local language.
- Mixing honey from different bee species is not allowed.

6.2.2 Harvesting season

Mondulkiri wild honey is exclusively harvested between February and May.



6.2.3 Smoking the Bees

- Prior to harvesting honey, the bees are driven away exclusively with cold (white) smoke made from tree bark and leaves.
- The use of fire or insecticide sprays to drive the bees away is prohibited as this method will kill the bees.



6.2.4 Harvesting only mature honeycombs.

- Only mature honeycombs are harvested. Mature honey = honeycomb is thick and at least 70% are sealed.
- Immature nests, comprising only bee brood and poor-quality honey. So, it must be left in place until they reach maturity.



6.2.5 Preventing bacterial contamination of honey during harvesting.

When climbing the tree to reach the nest, the collector's hands will get dirty which can lead to contamination of the honey during harvesting. The collectors must not touch the honeycomb during harvest. If touching the honeycomb cannot be avoided, the collectors must put on clean gloves before harvesting the honeyhead.

6.2.6 Preventing contamination of honey by pollen during harvesting.

When cutting the honeycomb, the honey collectors must carefully not cut the pollen store or allow the pollen to drop into the honey. If cutting the pollen is needed, the collector must carefully remove the pollen stores.

6.2.7 Return the pollen to the bees for the future development of the colony.

Leave the pollen comb as much as possible on the colony. The pollen comb that has been cut off from the nest should be returned by putting it on the tree branch where the nest is hanging.

6.2.8 Leave all broods and 20% of the honey for further bee colony development.

Only 80% of the honeycomb is harvested and all the bee brood is left intact for further development of the bee colony.



6.2.9 Cutting the Honeycomb

- The honeycomb is cut either with a clean stainless-steel knife or with a recently made wooden or bamboo knife. Old knives that are difficult to clean are prohibited.
- The honeycomb is wrapped into a new food-grade plastic bag or placed in a food-grade container.

6.2.10 Post-harvest.

- Prior to any honey processing operation, the collector must wash his hands thoroughly with clean water and soap and dry them well.
- During any processing operation, the collector must wear food-grade gloves.
- Before extracting the honey from the honeycomb and filtering it, the collector must remove any impurities such as bees or larvae, pieces of wood, and debris of pollen from the honeycomb.
- Only clean and dry food-grade containers, fine-meshed strainers, or mesh cloth are used to filter the honey.
- Uncap the honeycombs then cut them into small pieces and leave them in a strainer or clean mesh cloth until all the honey has drained by itself.
- Filtered honey is stored in tightly sealed food-grade containers to prevent contamination and increased moisture levels.

6.3 Honey Processing, Packaging, and Storage

6.3.1 Preserving honey quality during processing, packaging, and storage phases.

- Store honey away from heat, moisture, and direct sunlight. Heating honey modifies its aromas and color and reduces its health and medicinal benefits. Exposure honey to direct sunlight may also affect its health benefits.
- At all stages of processing, from reception to packaging, the processor must follow the following steps:
 1. Honey processing should be conducted in a clean, cool (below 25 C°), and dry room.
 2. Food and children are not allowed into the processing room.
 3. Prior to any processing operation, the processor must wash his/her hands thoroughly with clean water and soap and dry them well.
 4. During processing operations, the processor must wear food-grade gloves and a mask.
 5. Equipment or containers used for honey processing, packaging, and storage must be food-grade and perfectly clean and dry before use.
 6. Honey must always be stored in hermetically sealed containers.

6.3.2 Honey Purchase and Reception

- Honey is exclusively purchased from members of the Mondulkiri Wild Bee Conservation Association.
- Organoleptic tests and moisture content measurements are systematically carried out on each batch of honey upon receipt to guarantee (1) its origin (pure Mondulkiri honey from *Apis dorsata*) and (2) its compliance with the quality standards for Mondulkiri wild honey.
- Any batch of honey that didn't pass the organoleptic tests or is not compliant with the moisture level standards (<24% before dehumidification and <20% after dehumidification) is rejected.
- The honey received is stored in food-grade containers (see Point 6.3.6. Honey storage).

The operator must record purchase transactions such as the name of honey collectors or group, the name of the area where honey was collected, and the amount of honey purchased.

6.3.3 Honey filtration and ripening

The presence of impurities in honey can affect its quality, particularly changing its taste, increasing the risk of fermentation, and growth of bacteria, and may also affect its marketing. The filtration and maturation of honey consist of removing all impurities from the honey.

If the honey is received in the form of honeycombs:

1. The honeycombs are cleaned of any impurities such as bees or larvae, pieces of wood, and debris of pollen.
2. The honeycombs are uncapped, cut into small pieces, and left in a strainer or clean mesh cloth until all the honey has drained by itself. The honeycombs must not be pressed.
3. The strainer or mesh cloth is covered with a lid during honey drainage to prevent the increase of honey moisture level by prolonged contact with air.

If the honey has already been drained from the comb by the collectors, it must be filtered through a strainer and clean mesh cloth.

Filtered honey is then kept in a honey ripener for at least 05 days until all impurities and in particular pollen grains have come to the surface of the honey where they will form a foam. Pollen grains and other impurities that form a foam on the surface of the honey are removed with a clean cloth.



6.3.4 Honey dehumidification

Honey with a high moisture content is at risk of fermentation and generally has a lower commercial value. Dehumidification is a process of reducing the moisture content of honey to avoid its fermentation.

The temperature inside the dehumidification enclosure is monitored to ensure that the honey is not heated, and the moisture level of the honey is regularly monitored. The temperature during the dehumidification process should not exceed 40°C.

The dehumidification is stopped when the moisture reaches 20% or less.



6.3.5 Honey packaging

- The packaging room must be clean, dry, and hygienic.
- The containers used to package the honey, either glass jars or plastic bottles, must be food grade.
- Honey containers are filled from the bottom tap of a honey ripener.
- Honey jars or bottles are sealed immediately after filling to avoid any risk of contamination by impurities and increased moisture levels.

6.3.6 Honey storage

Bulk honey is stored in clean and dry food-grade containers. Both bulk honey and packaged honey must be stored in a clean, cool (ideally below 30 C°) and dark room. The honey storage room is equipped with a thermometer allowing the monitoring of the temperature.

Honey storage containers are tightly closed and labeled with mandatory information: moisture level, weight, code, and best-before date.

It is recommended that Mondulkiri Wild Honey can be consumed within 03 years of harvest.

7. Justification of the Link to Territory

Mondulkiri wild honey is historically harvested by the indigenous people group, who have a tradition of livelihoods based on the use of forest ecosystem natural resources.

Indigenous community has a legend about the origin of the honey collection which is part of their cultural heritage. According to the legend, once upon a time, a group of indigenous people was resting under a tree in the forest. They were cooking and eating. Suddenly and unexpectedly, many bees flew to them. The group tried to run away from the bees until they reached a place where there was wildfire. There, the bees stopped chasing them. At that time, those indigenous people observed that the bees were afraid of fire or smoke. Then, the indigenous people made a fire with smoke and brought it back to the cooking area where they could relax without being disturbed by bees again. Nearby, they have seen a bear eating beehives. Some of the beehives had fallen from the tree. Those indigenous people picked up the piece of the beehive, licked it, and found it remarkably sweet, delicious, and non-toxic. From that time, indigenous people began to enter the forest to collect honey, beehives, and young bee larvae to bring home for cooking or to exchange with other daily use materials.

In relation to the heritage and culture of the indigenous people, the characteristics of "**Mondulkiri wild honey**" are linked to the environmental conditions of the area, especially the influence of the climate. The collection of "**Mondulkiri Wild Honey**" is done only in the dry season, from February to May. During these months, honey has low moisture content and high sugar concentration compared to honey from other areas. The honey collection method is following the honey harvesting technique of the indigenous people community, in Mondulkiri province. The collection of "**Mondulkiri Wild Honey**" is based on honey harvesting experience, knowledge of forests, and bee sanctuaries in the delimited areas.

The Asian giant honeybee, *Apis dorsata*, is a primary forest species. The vast expanses of forest in Mondulkiri offer (1) large trees on which bee colonies can build their massive nests; (2) abundant and diverse flora from which they can collect the nectar and pollen necessary for their development and honey production and; (3) sources of water essential for the thermal regulation of their brood.

Apis dorsata is a migratory species; its colonies move from one forest to another according to the flowering seasons. In Mondulkiri, the first colonies usually arrive in November (early arriving colonies are sometimes noticed in late October) and the last colonies leave around July. The highest bee-nest density occurs in March–May, which also corresponds to the main flowering and honey harvesting seasons. In the dry season (March-April), bee colonies tend to cluster their nests near rivers or permanent water points.

The specific aroma of Mondulkiri Wild Honey is directly related to the flora of Mondulkiri forest and to the nectar of the flowers that *Apis dorsata* is foraging in the forest, notably the flower of forest tree species such as:

No	Khmer name	Scientific name
1	ស្រីឡាត្រូវកៅ	<i>Lagerstroemia calyculata</i> Kurz.
2	ចំបក់	<i>Irvingia malayana</i> Oliv.ex Benn
3	សុក្រាំង	<i>Xylia xylocarpa</i> Roxb.
4	ពាណិល	<i>Shorea roxburghiana</i> G.Don
5	ពង្គ	<i>Schleicheria trijuga</i> , willd
6	ត្រាច	<i>Dipterocarpus intricatus</i> Dyer
7	កោកោះ	<i>Shodora Siamensis</i> Teysm.ex.Miq.
8	កោដ្ឋាល	<i>Careya sphaerica</i> , Myrtacees
9	កន្លឹតតែងត្រ	<i>Ribes uva-crispa</i>
10	ក្រាយ	<i>Albizia thorelli</i> , Mimosees
11	កំភ្លា	<i>Microcos tomentosa</i> Smith
12	ខ្សែត្រ	<i>Artocarpus altilis</i> , Urticacees
13	ខ្សែ	<i>Dipterocarpus tuberculatus</i>
14	ខ្សែវ	<i>Adina cordifolia</i> , Hook.f.
15	គីតិ	<i>Hopea odorata</i> Roxb.
16	គុយ	<i>Willughbeia edulis</i>
17	ព្រះ	<i>Albizia lebbeck</i> Benth
18	តាំង	<i>Tonna febrifuga</i> , M.Roem
19	ផ្លូវស្រីសង	<i>Cananga latifolia</i> Fenetand Garnep
20	ឈើក្រហម	<i>Dipterocarpus tuberculatus</i> Roxb.

21	ណើមទាល	<i>Dipterocarpus retusus</i> Blume.
22	ណើមអំរម	<i>Cinnamomum</i>
23	លីក	<i>Terminalia alata</i> , F. Heyne ex Roth
24	ដង្កែបត្តាម	<i>Antidesma ghaesembilla</i>
25	ព្រោសក	<i>Peltophorum ferrugineum</i> , Benth.
26	ព្រោនកថ្វា	<i>Lagerstroemia floribunda</i>
27	ព្រមុង	<i>Gacinia oliveri</i> , Pierre
28	ធ្យុង	<i>Pterocarpus macrocarpus</i> Kurz.
29	ធ្យក	<i>Parinarium annamensis</i> .Hance
30	កាប់នាងនូន	<i>Dalbergia bariensis</i> Perre.
31	បេង	<i>Afezelia xylocapa</i> . Craib.
32	ធ្វីក	<i>Shorea obtuse</i> , Woll
33	ព្រីង	<i>Syzygium cumini</i>
34	ម្នាក់ថ្វា	<i>Spondias pinnata</i> (L. f.) Kurz
35	វកា	<i>Bombax insigne</i> Wall.
36	ព្រិប៉ូ	<i>Terminalia chebula</i>
37	ស្សុង	<i>Strychnos nux-vomica</i>
38	ស្ទាយថ្វា	<i>Mangifera duperreana</i>
39	សំរុង	<i>Scaphium affine</i>

Source: Tree inventory in Trapaing Ka Eourm Community Forestry

8. Inspection

8.1 Registration of Honey Collectors and Operators

As stated in section 5.2, honey collectors and operators must register as members of **Mondulkiri Wild Bee Conservation Association** and must comply with the present book of specifications.

All honey collectors and operators must apply for membership and must sign a commitment letter. After receiving the application form, the association will send the inspectors to check compliance with some key requirements mentioned in the book of specifications. They will be inspected for the first time to verify their compliance with structural requirements before being approved as a member of the Association.

All honey collectors and operators must keep the following documents in their house:

- Association statutes,
- Book of Specifications of Mondulkiri Wild Honey
- Letter of commitment to comply with the Book of Specification
- Book of matter accounting

8.2 Control of Compliance with Book of Specification

8.2.1 Control of Honey Collection Method

Inspections will be carried out without prior notice to honey collectors and operators to check the production system such as honey collection, storage, post-harvest techniques, packaging of **Mondulkiri Wild Honey**... etc. by verifying with BoS.

There are 3 levels of control set by the Mondulkiri Wild Bee Conservation Association:

- 1- Self-Control:** It is the set of verifications made by the producer and operator him/herself. The collector and operator need to have a good understanding of the Book of Specification of **Mondulkiri Wild Honey** and make sure their practices are compliant with the Book of Specification.
- 2- Internal Control:** It is the inspection conducted by the association's internal inspectors on all members to provide further guidance and verify the members' performance compared with the Book of Specification. The inspection must be done at least one time every year.
- 3- External Control and certification (As required by Cambodian regulations on GIs):** It is the inspection and the process of certification conducted by an independent certification body, recognized in accordance with the Cambodian regulations on **Geographical Indications**.

The honey collectors and operators cannot deny the inspection schedule and the inspection methods of the internal and external inspectors. Producers and operators cannot repeatedly reject more than 1 time on the inspection program.

8.2.2 Control on Honey Quality

This inspection is done by taking honey product samples from honey collector groups and operators to check the compliance of the honey product with the Book of Specification.

Before transporting more than 200 kg of honey from the "**Mondulkiri Wild Honey**" production area, all association members must inform to the association. The "**Mondulkiri Wild Honey**" can be transported in 72 hours after members have officially informed to the association, and after receiving confirmation from the association.

In the process of internal inspection, the sensorial analysis committee must analyze at least 3 lots of each operator who are the processors and packers. For external inspection, honey products can be analyzed if necessary. The sensorial analysis committee must be trained by professional experts.

8.3 Matter Accounting and Traceability

All honey collectors and operators in the supply chain must keep a record of **Mondulkiri Wild Honey** products such as collected volume, stocks, purchases, and sales for inspection, and inform the association at least once a year upon request, at any time.

In addition to this, a traceability mechanism is set up to be able to track all quantities and sources of **Mondulkiri Wild Honey** and to be able to verify the products indicated in the records with the products in the stock.

8.4 Sanction

Honey products that do not meet the requirements mentioned in the Book of Specification will not be allowed to be sold on the markets under the name of **Mondulkiri Wild Honey**. Both corrective measures and/or penalties will apply to collectors and operators who do not comply with the Book of Specification or to those who do not properly record honey transactions for the inspection.

There are 5 levels of sanction as below:

- Level 1: Advice.
- Level 2: Warning.
- Level 3: Reject the products in the whole lot.
- Level 4: Suspend membership within a limited time.
- Level 5: Cancel Membership.

The level of sanction is decided by the association. All sanctions are applied based on the level of sanction from level 1 to 5. The level of sanctions can be decided by the association or by the certification body. The certification body can decide to impose sanctions based on all relevant information or based on the results of internal inspection. The association may take temporary measures based on the results of the internal inspection.

The certification body is empowered to make decisions and enforce sanctions from levels 1 to 5. The association can make decisions and enforce sanctions of levels 1 and level 2, and it can take temporary measures to impose sanctions of levels 3 to 5 until the certification body makes a final decision on the case.

Any serious infringement can lead to the dismissal of honey collectors and operators from the **Mondulkiri Wild Bee Conservation Association** and can lead to punishments defined by the Laws and Regulations of the Kingdom of Cambodia.

8.5 Control Implementation

The association implements an internal control to check the actual implementation of the Book of Specification by the association's members.

The association must sign a contract with a certification body that is authorized by the Ministry of Commerce. The certificate body can be a competent public institution, or a private entity officially recognized by an international standard organization or any institution with a credible inspection system.

9. Labelling of Mondulkiri Wild Honey

The label of **Mondulkiri Wild Honey** must be written “**Mondulkiri Wild Honey**” in Khmer or other languages. Its size must be large enough or the largest one compared to the other letters

on the label. The word "**protected geographical indication**" can be placed next to the name "**Mondulkiri Wild Honey**" (in the same language as "**Mondulkiri wild honey**").

The following information or elements are mandatory for the labeling:

- The name "**Mondulkiri Wild Honey**" in Khmer or English (Additionally, the name can also appear in other languages) shall appear on the front side of the packaging.
- The collective logo of the GI "**Mondulkiri Wild Honey**"
- The Cambodian National logo of Geographical Indications (mandatory for sales in Cambodia) and/or other national or regional logos of countries where Mondulkiri Wild Honey has been registered as GI.
- The net weight of honey content and/or volume of honey content.
- Best before date (which shall not be beyond three years after harvesting).
- Batch number / Lot number.

¤The End¤

Annex 1: Color Guide of Mondulkiri Wild Honey

HONEY COLOR GUIDE

Water White

0 mm  8 mm

Extra White

8 mm  17 mm

White

17 mm  34 mm

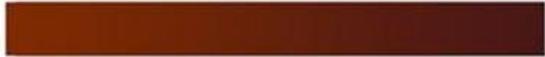
Extra Light Amber

34 mm  50 mm

Light Amber

50 mm  85 mm

Amber

85 mm  114 mm

Dark Amber

114 mm  140 mm

Accepted color

Thickness of honey to check the color is 5 mm – 10 mm

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