

Honey Collection and Marketing in India

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1. Introduction

There are more than 20,000 species of wild bees, many of them are solitary. Most bees are wild, whereas man has been able to domesticate just a few for beekeeping and managed production. Beekeeping is the practical management of social bees producing honey, the species being *Apis mellifera* across Europe, America and Africa and *Apis cerana* in the Asian Tropics. In the west, *Apis mellifera* has been hybridized to produce bee colonies with desirable features for man's use. Of late, the colonies have been destroyed in large scale with diseases like Colony Collapse Disorder and attacks by Varroa mites. This has affected both honey and pollination services, earlier provided by the bees.

In Asia and specifically in India, there are 4 types of honey bees widely known with varying associations with man. Honey hunting from the wild is still practiced across the country. Collecting honey from wild bee colonies is one of the most ancient human activities and is still practiced by aboriginal societies in parts of Africa, Asia, Australia, and South America. Some of the earliest evidence of gathering honey from wild colonies is from rock paintings, dating to around 13,000 BC. Communities have also followed different methods of domestication of bees, mainly *Apis cerana*. In the Himalayas – wall hives and log hives are used extensively; amongst many southern adivasi communities bees are reared in pots, bamboo nodes, walls and natural tree cavities. Amongst these are the Kattunaickens and Todas.

2. Wild Bees in India

Three species of Apidae: *Apis dorsata*, *Apis cerana* and *Apis florea*, and stingless bees of the family Meliponinae occur in the NBR (Thomas et.al 2009). Among the *Apis* bees, *Apis dorsata* and *Apis florea* build single comb open nests, whereas *Apis cerana* are cavity nesting and build parallel combs (Crane 1999). *Apis dorsata* is an economically important bee species due to the large quantities of honey that it can produce. They occur through India and South East Asia and are known to migrate locally following availability of floral resources (Crane 1990).

The Rock Bee (*Apis dorsata Fabricius*)

It gets its name from the habit of nesting beneath overhanging rocks. It is also known as the Giant Bee and is a tropical species found throughout South-East Asia and the Indian sub-continent. Rock paintings from Singanpur, India, which are more than 2400 years old, show honeyhunters collecting honey from a



nest of *Apis dorsata*. This bee is till today the source of a substantial part of the honey used in South-East Asia.

Apis dorsata is the largest, known, social bee. It builds a single comb nest, from bees wax, attached to a high branch in trees, under a rock overhang and sometimes under the ceilings of large buildings. Nesting places, built in the open but protected from rain and direct sun during summer and with abundant sources of nectar and pollen in surrounding areas, are preferred. Aggregations of up to 100 colonies in one tree are found in good areas. The upper part of the comb can store anywhere between 2 to 40 kgs of honey. Pollen and brood are stored in the lower part. Worker bees cover the comb as a curtain for protection and to maintain optimum temperature. A strong colony can have 60,000 to 1,00,000 worker bees.

Apis dorsata colonies are known to be vigorous, vicious and swift to attack intruders. Colonies migrate over large distances to areas with abundant nectar flow, in different seasons. Attempts to domesticate *Apis dorsata* have failed. These bees are valuable pollinators with a foraging range of several kilometres.

The Asian Honey Bee (*Apis cerana Fabricius*)

Being indigenous from Afghanistan to Japan and China, *Apis cerana* exhibits a number of races and sub-races, which differ widely in productivity, behaviour and body size.

Feral colonies nest in cavities of trees, rocks, stone walls and other dark enclosed places, building several parallel combs. Honey for rearing of brood is stored in the upper part of central combs while pollen and brood are stored below. Surplus honey is stored in the outer combs.



Apis cerana often absconds (leaves) the nest in case of severe disturbance or lack of food. Their temper is gentle to moderately aggressive, with a distinct positive correlation between colony size and aggressiveness.

Beekeeping with *Apis cerana* in simple hives, has been practised in India for at least 2000 years. In Tamil Nadu, some honeyhunters only hunt *Apis cerana* honey. It is a valuable pollinator with a foraging range of 800 metres. The bee has been domesticated for honey production. Now it suffers from a viral disease, the Thai sac brood virus – making it a vulnerable population.

The Little Honey Bee (*Apis florea Fabricius*)

The small single comb nests of *Apis florea* is often found in dense, shrub vegetation, in cavities of trees and rocks or under roofs of palm leaves. Workers form a multi-layered protective blanket covering the comb. Sticky plant resins are used on the branch supporting the comb, to protect the colony from ants.



Honey is stored in the upper part of the comb while pollen, brood and drone cells are stored below. Honey usually sells at better prices than honey from *Apis cerana* and *Apis dorsata*, due to reputed medicinal properties. The annual yield from a colony is about 1-3 kgs.

Honey can easily be harvested, without destroying the colony by applying a little smoke. Unfortunately, honey hunters often collect the whole

comb. If disturbed, the bees desert the comb, but often return within a short time. It is a valuable pollinator with a foraging range of up to 500 metres.

Dammer Bees (*Trigona spp.* and *Melipona spp.*)

They are the smallest among the honey-yielding bees. They are often called stingless bees because they do not sting but bite. Their nests are built in trunks of trees, logs, wall crevices or under the roofs of dwellings. In Tamil Nadu, there is a tradition for keeping Dammer Bees in bamboo hives. The bees are easily hived and seldom abscond from their nest.

Dammer bees gather propolis (plant resins) and use it together with wax, to construct their nest. In the nest, there is a group of separate cells for brood rearing and another group of larger “sacs” for storage of pollen and honey. The dark and bitter honey is valued for its medicinal properties. Information on honey yields range from 20 grams to 1 kg per colony per year. They are probably valuable pollinators but information is not available. The adjacent picture shows Dammer bees being kept in bamboo poles in a Nayaka home.



3. Honey Hunting

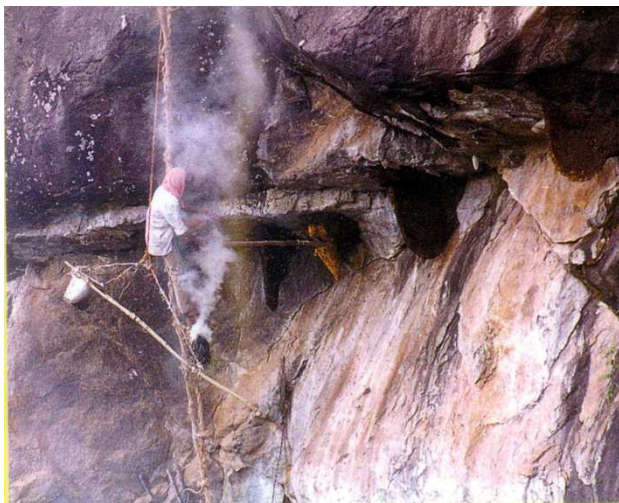
Honey hunting is a traditional ancient activity done by adivasi people since ancient times. Honey is collected seasonally and the harvesters have a complex understanding of the seasons, bees, forest blooms, and rain. A single comb harvest can give anywhere between 3 to 12 kgs of honey and is the largest contributor of forest honey in the market. Many communities across India seasonally depend on this bee for their income and subsistence needs.

A Case from the Nilgiris

Honey hunting is a traditional activity undertaken by adivasi communities in the Nilgiri Biosphere Reserve. During the honey season, groups of honey gatherers prepare for the collection. This activity is rich with traditions, beliefs and superstitions, which vary from one community to another. In general, honey collection is done after a period of abstinence, following strict measures to ensure purity and cleanliness. Preparation for honey collection entails the making of ropes and ladders from forest vines and barks and making smokers of green leaves, bamboo spears, baskets for collection, etc.

Usually a group of 4-5 people go for honey collection on cliffs and at least 2 persons when harvesting from the trees. Singing Bee Songs and eating of bee brood and honey, is a way to celebrate a good harvest in the village. These traditions are followed mainly for the collection of *Apis dorsata* - the Giant Rock Bee. The sections below describe the honey gathering techniques of the different groups.

From a traditional activity for food and barter, today honey collection is mainly done for commercial purposes. Over the years, some of the traditions have eroded and more practical tools adopted. However, by and large, honey gathering is special to these people and has retained its role as a cultural activity. In the following section, the status of honey



collection in the area is elaborated – covering both, the traditional aspects and the present commercial exchanges.

We estimate there are more than 30 indigenous communities of the NBR who are engaged in honey hunting or gathering like the Alu Kurumba, Kattunayaka, Irula, Cholanayaka, Paniya, Jenukuruba etc.. The indigenous people of the NBR like others around the world have kept their livelihood baskets very diverse, supplementing forest gathering with agricultural work both for commercial and

subsistence purposes. Those that practiced pastoralism continue with smaller herds of cattle in more recent times. The Todas are a famous indigenous group of the region who are pastoralists but also practise a forest beekeeping with *Apis cerana* bees.

The honey hunters live close to forests and their social cohesion is loosely held as they are spread across vast forested regions. Their economic condition is poor and they resort to wage work when possible, forest produce collection or subsistence agriculture on marginal lands. In a study done across 16 sites in the NBR, the annual incomes of indigenous families was shown to vary between Rs. 25,000 to 75,000 in 2009 and this variation depended on access to wage work, extent of NTFP collection and land available for agriculture. (Pain, et al 2009). Houses are now provided through government aid programmes though even today basic needs like roads, clean drinking water, health care are not easy to access for many. Lack of savings or any other back up often puts these families in debt due to health emergencies, marriages or other festivals. Their lives are also impacted by a complex system of beliefs, traditions and superstitions.

4. Honey markets

About 10,000 tons of forest honey are produced annually. Apiary honey produced under the KVI sector is estimated to be a little less than 10,000 tons in 1990-91. Over 95 per cent of this was from the *A. cerana* colonies, the rest being from the European bee colonies. Forest honey, mostly from rock bee hives, is usually collected by tribals in forests and is procured by forest or tribal corporations as a minor forest produce.

http://agritech.tnau.ac.in/farm_enterprises/fe_api_beekeepingindustry.html

Major part of India's honey production, approximately 60 thousand tonnes per annum comes from wild bees (Phadke, 2008). This honey is processed and sold in retail shops. The herbal industry in India is a large consumer of honey and they are always on the look out for 'affordable' honey. Honey plays a significant role in the adivasis' family economy as profits are high in a good season. Forest produce collection contributes between 20 – 80% of gross annual income amongst adivasis in the NBR; Honey is a significant contributor seasonally to this income for some communities. (Pain, et al., 2009). Honey is usually high in demand and finds an easy market.

In the past adivasis used to barter honey in this region in exchange for grain or cloth and honey was among one of the highly valued produce. Other communities, who are an agricultural and pastoral were always willing to buy the forest products like honey, resin or soap nut from the adivasis. Some of this barter still continues today though in many areas cash is offered instead of produce. Honey was stored in bamboo and sealed with wax – this provided the 'vessel' for transport across the hills even some 20 years ago (pers.obs). With the entry of the market economy, there has been a shift to selling honey to migrants and traders who settled in the Nilgiris. The honey was sold in old bottles, and of poor quality with dirt, crushed larvae and wax inside it. The honey sold for low prices and had no regulated market. Traders also collected honey for wholesale markets which catered to the traditional medicine producers or to companies who sell honey like Dabur and Himalaya. In 1993 honey could be purchased in the Nilgiris for Rs 17-30 (Nath et al, 2001)

Value chain for wild honey - Almost all honey goes through a series of traders moving to higher levels of aggregation and also to larger cities successively. It is often difficult to trace these chains as they are through the informal system with no records, receipts, tax, etc. Lack of traceability is a common issue in wild honey, as in other NTFPs. Honey collected by adivasis in small quantities is often sold to richer neighbourhoods, estate owners, tourists or government establishments locally.

However, if collected in bulk as by traditional honeyhunters it is difficult to retail. The honey hunters need immediate returns and are often tied up with indebtedness to local traders. The latter often quote lower prices and exploit the gatherers, while keeping the debt trap alive.

In the Nilgiris too the same situation existed till Keystone's interventions since 1995.

Market interventions – A Case Study in the Nilgiris

Keystone entered the honey market with forest and agriculture produce of the indigenous communities of the NBR with an intention to give better prices to the people as also a good quality, sustainably harvested product to the customer. Local market in Nilgiris was created over time which has increased the returns to the adivasi community from Rs. 50 per kg in 1995 to Rs. 220 per kg in 2013. Quality parameters have been defined based on water content, transparency and clarity of honey. This was achieved through a series of trainings, skill development and technology intervention with the honey-hunters. The second intervention in the market was to sell all honey in retail, value adding it locally and generating further employment and margins for the community. This was enabled by creating centres in villages, processing units, innovating on appropriate technologies to suit the hills and start bottling of honey in various pack sizes. A series of Green Shops now enable to sell all the honey collected in the 2 main processing units, giving full time employment to 7 adivasi men and women for filtering and packaging.

Besides wild honey, India has beekeeping now done extensively in the northern parts of India with *Apis mellifera* or the Italian Bee. This honey is also sold in the market and was in news because of the presence of anti-biotics in the honey.

(http://www.cseindia.org/userfiles/food_safety-march12/Prakash_kejriwal.pdf) According to APEDA, this honey is exported in India after passing safety regulations. The country has exported 25,780.74 MT of natural honey to the world for the worth of Rs. 356.28 crore during the year of 2012-13. Honey was exported to United States, Saudi Arabia, UAE, Yemen Republic and Morocco

http://www.apeda.gov.in/apedawebsite/SubHead_Products/Natural_Honey.htm

Besides this The Khadi Village Industries Commission has direct responsibility to spread beekeeping and promote the sales of honey, which can be seen in their outlets across India.

5. Conclusion

In India alone it is estimated that more than 100 million people are dependent on forest gathering as a source of livelihood (Kabra, 2010). Forests in India cover only upto 20% of the land cover and pressure from large scale development projects, mining, urbanisation, unregulated harvests of forest products for the medicinal plant industry, negatively impact the quality of the remaining forest areas. Displacement of indigenous people and conversion of biodiversity have gone hand in hand, leading to an irreversible erosion process for both.

There have been many debates and points of view about NTFP collection and its impact on the forest. What needs to be addressed is the judicious use of forest resources by those who need it most. Concepts of sustainable harvesting, quality parameters and seasonality have to be put in practice. Many roleplayers across India are undertaking these steps to ensure sustainable production of honey and other NTFPs. It is for this set of forest dependent people that wild honey is important – both from their culture and income aspects.

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