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PP-183 [Beekeeping Technology and Quality]

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PRODUCTION, PROCESSING AND QUALITY OF INDIAN HONEY FROM APIS DORSATA

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ABSTRACT

"Madhu" i.e. Honey in Sanskrit the original Indian language, is collected by Rock bees or Giant bees Apis dorsata honeybees are well known and used since ancient times. The Indian traditional medicine system – Ayurveda, describe several formulations and its health benefits, still continued and practiced. Honey is an important item in Indian religious rituals. It has been estimated that out of total production of honey in India (133,000 MT) about 60 – 65 % honey is contributed by Apis dorsata.bee colonies alone, besides Indian native Apis cerana, Apis florea and exotic Apis mellifera bees. This dorsata honey is most commonly marketed and used in India and else where.

The huge sized Apis dorsata bee colonies found on trees and rocks in forests and mountains in large numbers and not easily accessible. As also found in urban areas on tall concrete buildings, galleries, bridges, water tanks. Honey produced in forests originated from the nectars of several medicinal plants and trees, almost free from chemicals in best natural environment. The size of the dorsata bee-colonies or comb is about 0.5-1.5 M and quantity of honey stored is larger than A.mellifera and A.cerana bees hence it need different management and techniques. It yields about 10 – 40 kg honey from single colony.

Methods for collection, extraction, production and handling of honey by safe and hygienic techniques being developed and standardized.

Assessment of quality of dorsata honey showed that it contain moisture (water) as high as 24.5 %, HMF 110ppm (Maximum), Diastase activity (DN) 8.20 (Maximum) besides other characteristics. The quality of honey including reduction of excess moisture (almost 5%) from 24.5% reduced to 19.5 %. Turbidity / Optical Density improved to 0.45, besides organoleptic testes and other vital natural medicinal properties could be maintained. Beekeeping technology and quality of honey from dorsata bee colonies improved besides conservation of bees and welfare of local honey collectors. The proper scientific handling, processing and storage etc. of honey benefitted to over 6000 beneficiaries by the CBRTI programme. It has great scope as "Organic honey", if proper certification is done. This will help to cover even 40-50% of almost 90 % untapped potential of dorsata honey

Figure-1- NATURAL APIS DORSATA COLONY

Figure-2- Manual/Motorized Centrifugal Honey Extractor with Filter Bag

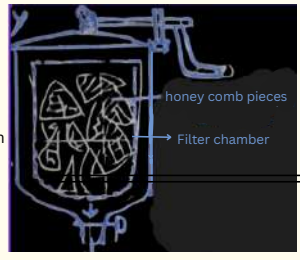


Figure-3

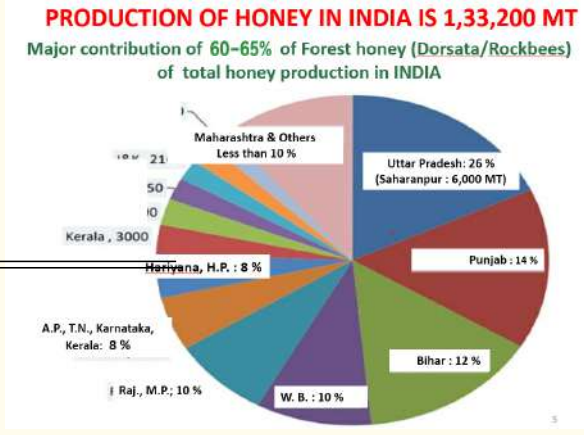
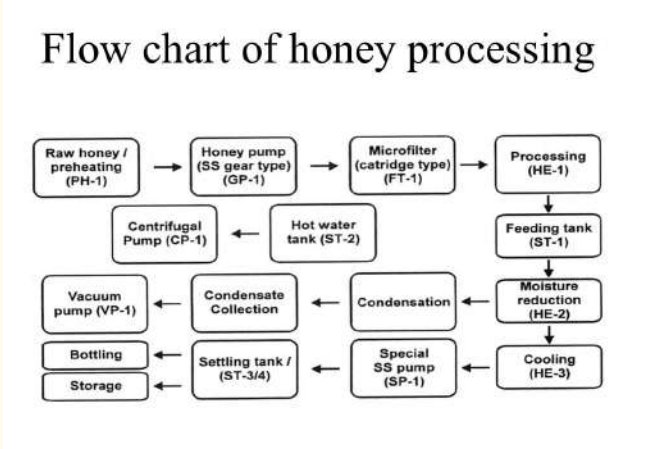


Figure-4



QUALITY ASSESSMENT OF DORSATA HONEY

Table 1. Quality of raw honey Vs Processed honey from *Apis Dorsata* (Av.68 samples)

SLNo	Characteristics / Quality	Raw Honey	Processed Honey	FSSAI - 2020
1.	Colour / Clarity	Light to Amber / Turbid	Light to Amber / Clear	----
2.	Flavour	Unpleasant	Characteristic	----
3.	Taste	Sweetish sour	Characteristic sweetish	----
4.	Fermentation	6 – 12 Months	No, Even after 12 Months	----
5.	Granulation	Within 12 months	After 12 months at Room Temp	----
5.	Specific gravity 27°C	1.38 – 1.41	1.36 – 1.40	1.35
6.	Moisture (Water) %	21.75 – 24.50	18.50 – 20.00	20 Max.
7.	Total Reducing Sugars %	70.6 – 76.8	74.00 - 80. 20	60
8.	Fructose (Levulose) %	36.50 – 36.80	38.20 – 41.50	---
9.	Glucose (Dextrose) %	34.00 – 36.80	33.00 – 38.50	---
10	Ratio F/G OR L/D	1.00 – 1.20	1.00 – 1.20	0.95 – 1.5
11.	Sucrose %	1.10 – 2.40	1.00 – 1.50	5 Max.
12	Acidity as formic acid %	0.12 – 0.22	0.10 – 0.20	0.2 Max.
13	Ash (Minerals) %	0.25 – 0.35	0.18 – 0.30	0.50 Max.
14	Water insoluble matters % ,Max Pressed honey % Max	1.20 – 3.50	0.20 – 0.35	0.10 Max. 0.5 Max.
15	Pollen count (per g) Max	9000 – 14000	500 – 1200	5000 Max
16	Hydrxy Methyl Furfural (HMF) mg / kg (ppm)	08 – 78	20 – 80	80 Max
17	Diastase No. (DN)	10 – 15	2 – 12	3 Min.
18	Yiest count (millions / g)	Numerous	Nill	----

Figure-5

CONCLUSION

Above studies showed huge quantity of honey from A. dorsata in India need organised and modern scientific methods for collection, processing and quality control need to improve to meet vast increased demand for marketing and export.

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