CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
SJIF Impact Factor: 7.187

Online at: http://www.iajps.com Research Article

CHEMICAL ANALYSIS OF WINTER HONEYS COLLECTED FROM APIS DORSATA HIVES OF CHIMUR TAHSIL OF CHANDRAPUR DISTRICT OF MAHARASHTRA STATE (INDIA)

Laxmikant N. Borkar[1*] and Devendra M. Mate[2]

[1]Department of Botany, S. S. Jaiswal Arts, Comm. and Science College, Arjuni (Mor), Gondia, India.

[2]Department of Botany, Nutan Adarsh Arts, Commerce and M. H. Wegad Science College, Umrer, Dist – Nagpur.

Article Received: April 2021 **Accepted:** April 2021 **Published:** May 2021

Abstract

The present investigation was undertaken to determine the chemical analysis of 6 Winter honey samples (CHN-CHI-TUK, CHN-CHI-KUT, CHN-CHI-KAJ, CHN-CHI-ALL, CHN-CHI-MOT, CHN-CHI-BOR) collected from forest area of Chimur Tahsil of Chandrapur District of Maharashtra State (India). These samples were analysed for several parameters such as moisture, total reducing sugar, Levulose or Fructose, Dextrose or Glucose, L/D ratio, Sucrose, Acidity. This type of chemical analysis favours the utilization of the honey for good quality in this area.

Key words: *Chemical Analysis, Winter Honey, Chimur Tahsil.*

Corresponding author:

Laxmikant N. Borkar*

Department of Botany,

S. S. Jaiswal Arts, Comm. and Science College, Arjuni (Mor),

Gondia, India.

Corresponding Author E-mail : borkar_laxmikant@rediffmail.com

QR code

Please cite this article in press Laxmikant N. Borkar and Devendra M. Mate., ***Chemical Analysis Of Winter Honeys Collected From Apis Dorsata Hives Of Chimur Tahsil Of Chandrapur District Of Maharashtra State (India)*** *., Indo Am. J. P. Sci, 2021; 08(05).*

INTRODUCTION:

Honey is a carbohydrate rich naturally complex product produced by honey bees from floral nectar. Honey has been used by all civilizations as nutrient food and in traditional medicine. The quality of honey depends on various physiological factors such as climate, soil, etc. Honey contains Sugar, Protein, Moisture, Vitamins, Minerals, Enzymes, Polyphenols and Flavonnoids (Al – Manary *et al.*, 2002) because of this unique complex nature, honey is proved to be useful in the treatment of burns, wounds, skin ulcers as an antioxidant and iin the treatment of external eye diseases (Balasubramanyam, 2011). Furthermore, honey is a highly valuable ingredient in condiments, beverage, sauces and sweets. In fact numerous studies have been reported on physical, chemical and melissopalynological parameter of honeys from all over the world. (Adenken *et al.*, 2010; Anklam, 1998; Cherian *et al.*, 2011; Borkar Laxmikant and Mate Devendra, 2014; Downey *et al.*, 2005; Ramnath nad Shivaramm, 2012, Terrab *et al.*, 2002; Xesus *et al.*, 2010). The scientific literature revealed that the information is not available with respect to chemical characteristics of honeys from Chimur Tahsil of Chandrapur District of Maharashtra State in India. The purpose of this study has to investigate some chemical prameters such as Moisture, Total Reducing Sugar, Levulose or Fructose, Dextrose or Glucose, Levulose/Dextrose, Sucrose, Acidity and Microscopical analysis of honey collected from different regions of Chimur Tahsil of Chandrapur District of Maharashtra State in India.

MATERIAL AND METHODS:

Chemical analysis of the honeys are carried out by using Indian Standard Specification, IS: 4941 (1974) and IS: 8464 (1977). The percentage of Total Reducing Sugar, (Levulose or Fructose + Dextrose or Glucose), Levulose, Dextrose, Sucrose, Acidity, Moisture and L/D ratio were estimated.

RESULTS AND DISCUSSION:

The chemical properties of the 6 Winter honey samples (Viz. CHN-CHI-TUK, CHN-CHI-KUT, CHN-CHI-KAJ, CHN-CHI-ALL, CHN-CHI-MOT, CHN-CHI-BOR) were collected during the period 28 December, 2011 to 30 December, 2012 form Tukum, Kutala, Kajalsar, Allizanza, Motegaon and Borgaon respectively from Chimur Tahsil of Chandrapur District of Mahartashtra State are reported in table.

Table 1: Chemical Analysis of honey samples obtained from Chimur Tahsil of Chandrapur District.

			Parameter						
Sr. No.	**Location of Parameter**	**Date of Collection**	**Moisture %**	**Total Reducing Sugar %**	**Levulose or Fructose %**	**Dextrose or Glucose %**	**L/D Ratio**	**Sucrose %**	**Acidity %**
1	CHN-CHI-TUK	28-12-2011	27	72.272	38.713	33.539	1.286	1.656	0.2829
2	CHN-CHI-KUT	05-01-2012	25.8	72.352	38.813	33.539	1.286	4.296	0.2898
3	CHN-CHI-KAJ	09-01-2012	25.3	74.545	43.482	31.063	1.561	1.759	0.2898
4	CHN-CHI-ALL	18-02-2012	27	76.647	39.053	37.716	1.146	1.294	0.3606
5	CHN-CHI-MOT	29-01-2012	29.8	76.675	39.616	37.616	1.146	1.394	0.3634
6	CHN-CHI-BOR	30-12-2012	26.5	68.615	34.05	34.465	1.089	1.491	0.3105

In the present study moisture content in the sample ranges from 25.3 to 29.8

Increase in the temperature moisture is low and decrease the temperature moisture is high. Increase in moisture content of honey is also indicative of adulteration. The low moisture content of honey forms an important part of the system which protect honey from attack by microorganism.

Sugars:

Honey consists of mostly Glucose and Fructose. The actual proportion of Fructose to Glucose in any particular honey, depends largely on the sources of the nectar. All samples contained more Fructose than Glucose.

This indicated that Chimur honeys would be less prone to granulation Fructose level in honey is higher than that of Glucose. Honey with high Fructose to Glucose ratio would remain liquid for longer period. The Fructose/Glucose ratios may have an impact or honey flavour, since fructose is much sweeter than glucose.

Acidity:

Acidity of the honey sample ranges by 0.2829 to 0.3634 respectively. Acidity values may indicative the fermentation of honey sugar by yeast.

REFERENCES:

1. Adenekan, MO, Amusa NA, Lawal AO, Okpeze VE. Physicochemical and microbiological properties of honey samples obtained from Bada, Journal of Microbiology and Antimicrobials, 2010; 2(8):100-104
2. Al ML, Danial DJ, Moise A, Bebis O, Lasio L, Bogedanov S. Phycochemical and bioachive properties of different floral originhoneys from Romdnia. Food Chemistry, 2002; 112, 863-867.
3. Anklam EA. A review of the analogical and botanical origine of honey, Food Chemistry, 1998; 63, 549 – 562.
4. Balsubramanyam MV. Chemical Characteristics of much floral wild and apiary honeys from Western Ghats of Karnataka. The Bioscan, 2011: 6, 467 – 469.
5. Borkar Lamikant and Mate Devendra. Chemical Analysis of Winter Honeys collected from Apis doersata hives of Bhadrawati Tahsil of Chandrapur District of Maharashtra State (India), Int. Res. J. of Sci. & Engg., 2014: 2 (4):139_141.
6. Cherian KJ Bhowal M and Godghate SD. Pollen and hysiochemical analysis of honey preduceed by Apis cerena indica of Nagpur, Maharashtra (INDIA). Journal of Environmental Research and Development, 2011; 5(3): 542-550.
7. Downey GJ, Hussey K, Kelly JD, Walshe TF and Martin PG. Preliminary contribution to the characteristics of artisanal honey produced on the island of Ireland by palynological and physico – chemical data. Food Chemistry, 2005; 91, 347-354.
8. IS: 4941-1974 Indian Standard Specification for extracted honey (First Revision), Indian Standards Institution, 1974, New Delhi : 1-16.
9. IS: 8464-1977 Indian Standard Specification for Squeezed honey, Indian Standards Institution, 1977, New Delhi : 1-8.
10. Ramnath Subharani and Venkataramegouda Sivaramm physicochemical and pollen analysis of Western ghats honey of Karnataka south, India. I.J. S.N.,2012: 3(4):831- 835
11. Terrab AJ, Diez MJ and Heredia FJ. Characterization of Moroccan unifloral honeys by theis physicochemical characteristics. Food Chemistry, 2002: 79, 373 – 379.
12. Xesus FJ, Jose P, Maria LE, Antonio I and Jose PA. Palynological and physicochemical data charctrazation of honeys produced in the Entre – Douro e Munho region of Portugal, International Journal of food Science and Technology, 2010; 45,: 1255-1262.