

## Chemical Analysis of Summer Honeys Collected From Apis dorsata hives of Pombhurna Tahsil of Chandrapur District of Maharashtra State (India)

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### Abstract

The present investigation was undertaken to determine the chemical analysis of 5 squeezed summer honey samples (CHN-POM-YER, CHN-POM-CHI, CHN-POM-DIG, CHN-POM-DEV, CHN-POM-BEM) collected from forest area of Pombhurna 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, Summer Honey, Pombhurna Tahsil.

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### I. 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 Flavonoids (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 in 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 Pombhurna Tahsil of Chandrapur District of Maharashtra State in India. The purpose of this study has to investigate some chemical parameters 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 Pombhurna Tahsil of Chandrapur District of Maharashtra State in India.

### II. 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.

### III. RESULTS AND DISCUSSION

The chemical properties of the 5 summer squeezed honey samples (Viz. CHN-POM-YER, CHN-POM-CHI, CHN-POM-DIG, CHN-POM-DEV, CHN-POM-BEM) were collected during the period 08 April, 2012 to 10 June, 2013 from Yergaon, Chiroli, Dighori, Devada, Bembal respectively from Pombhurna Tahsil of Chandrapur District of Maharashtra State are reported in table.

**Table: Chemical Analysis of honey samples obtained from Pombhurna Tahsil of Chandrapur District.**

Sr. No.	Location of Parameter	Date of Collection	Parameter						
			Moisture %	Total Reducing Sugar %	Levulose or Fructose %	Dextrose or Glucose %	L/D Ratio	Sucrose %	Acidity %
1	CHN-POM-YER	08-04-2012	23	68.582	37.595	30.938	1.392	1.484	0.2415
2	CHN-POM-CHI	13-04-2012	24	73.352	44.289	89.163	1.594	3.061	0.2875
3	CHN-POM-DIG	14-06-2012	17.8	72.781	36.565	34.536	1.224	1.044	0.3028
4	CHN-POM-DEV	28-05-2013	18.5	76.875	38.383	38.492	1.106	1.394	0.368
5	CHN-POM-BEM	10-06-2013	18.6	72.101	34.536	36.565	1.044	1.124	0.3126

In the present study moisture content in the sample ranges from 17.8 - 24. 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 Pombhurna 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 on honey flavour, since fructose is much sweeter than glucose.

**Acidity:**

Acidity of the honey sample ranges by 0.368-0.3028 respectively. Acidity values may indicate the fermentation of honey sugar by yeast.

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