PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
FACULTAD DE AGRONOMÍA E INGENIERÍA FORESTAL

HONEY CERTIFICATION ANALYSIS HYROXYMETHYLFURFURAL (HMF) AND MOISTURE CONTENTS

BOTANIC AND NATURAL PRODUCTS LABORATORY
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INTRODUCTION

The innate characteristics of sugar-derived products are very sensitive to heat and can deteriorate during storage. Honey, being a sugar-derived product is also susceptible to these transformations. Exposure to heat can affect the honey's organoleptic/therapeutic properties as well as its enzyme and vitamin contents. Hydroxymethylfurfural (HMF) is one of the compounds formed by the deterioration of sugar-derived products; in particular the dehydration of fructose. The occurrence of HMF in honey is directly related to color alterations and to the development of odd flavors and smells. For this reason HMF is considered to be one of the most important quality parameters of honey to take into account.

This compound appears spontaneously and naturally in honey due to factors [such as PH acid, water content, and the composition between glucose and fructose] that increase their concentrations over time. The factor that most visibly influences the velocity of HMF formation is the increase in temperature. The maximum level of HMF permitted for raw honey in the current norms (USDA, EU) is 40mg of HMF per kg of honey. Values exceeding this level indicate the honey is not of high quality and considered to be (a) old, (b) bad quality, and/or (c) excessively heated or adulterated.

MATERIALS

The analyzed honey corresponds to 1 sample produced by Boris Devlahovich, an Apiarist from Region X, harvested during the 2016 season. The list of the analyzed simple is shown in Table 1. The sample were made to arrive for testing at the Faculty of Agronomy of the Pontifical Catholic University of Chile.

Table 1. List of the analyzed simple, along with the apiarist's information including the honey's location of origen.

	Sample	Weight (kg)	Apiarist	Region	Location	Harvest
1	M1624	0,5	Boris Devlahovich	X	Chiloé	March 2016

CONDUCTED ANALYSES

I. Hydroxymethylfurfural (HMF) Content method:

The following analysis was conducted using the Quantitative Colorimetric Method (Winkler 1955), using the following reagents: barbituric acid and p-toluene analyses. The results are expressed in milligrams of Hydroxymethylfurfural per kilogram of honey.

Results

	Sample	HMF contents (mg HMF / kg of honey)
1	M1624	8,34

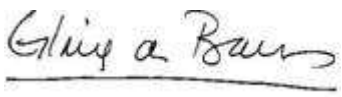
II. Moisture Content (humidity) Method:

Water content is one of the most important characterics when measuring true quality of honey and determining its level of preservation. The harvest of honey that is not capped or immature causes an elevated moisture level in the final product, whose greatest inconvenience is the increase in risk of fermentation. The moisture content of honey also can increase during extraction and storage due to its hygroscopic properties. The measurement of moisture content of the sampled honey was performed using an Analogic Refractometer.

Results

	Sample	Moisture Content %
1	M1624	17,5

This certificate on behalf of Boris Devlahovich is presented for the purposes it deem appropriate.



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