

Recent Bibliography on Medicinal Honeys

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A Thesis Submitted for the Degree of

GRADUATE IN PHARMACY

University of Wisconsin

1913

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Introduction.

Honey is probably one of the oldest dietetic and medicinal agents known to man. Because of its supposed source from heaven, it was regarded as possessing special virtues and some of its preparations were looked upon as possessing well nigh ^{1.)} miraculous powers even in the age of Paracelsus.

The sweet sour preparation of honey and vinegar was known to the ancients and named Oxyglykon and Oxymel by the Greeks. Diluted with milk, it yielded the Melikraton, with water the Hydromel. ^{*)}

Even after sugar was brought to Europe, honey continued to play its important role, largely, no doubt because of the expense of sugar and its distant source. Honey was produced, not only in the countries of Asia, Africa and along the Meditteranean, but in the north European countries as well. But even now, at a time when the best refined sugar is cheaper than honey, this product of the diligent bee still finds its use in pharmacy and medicine. Indeed one of the principal problems of the present day pharmacist, so far as honey is concerned, is to learn to distinguish between natural and artificial honey.

(1) Wooton, Chronicles of Pharmacy, I, p.245.)

(*) Berendes, Das Apothekenwesen, p.37.)

The difference in both color and taste of honey with regard to the vegetable source from which the bees collect it has long been observed. It has also long been known that honey may be poisonous because bees may extract the poisonous as well as the sweet principles of flowers. However, to make application of this observation to the natural preparation of medicated honeys, appears to have been reserved to a modern Abyssinian ruler, who had the bees of his royal garden produce an anthelmintic honey from kuso flowers.

In this bibliography the attempt has been made to bring together references to work in recent years along these several lines.

Tabulation of Honeys of U. S. P. 1820-1900.

	1820	1830	1840	1850	1860	1870	1880	1890	1900
Mel	-	-	-	-	-	-	+	+	+
Depuratum	-	-	-	-	-	-	-	-	+
Despumatum	+	+	+	+	+	+	+	+	-
Preparatum	-	-	+	-	-	-	-	-	-
Oxymel Scillae	-	+	+	+	-	-	-	-	-
Rosae	-	-	+	+	+	+	+	+	+
Scillae Acetatum	+	-	-	-	-	-	-	-	-
Scillae Compositus	+	+	-	-	-	-	-	-	-
Sodii Boratis	-	-	-	-	+	+	-	-	-

Observations on the Table of U.S.P. Honeys.

From the table of U. S. P. honeys it becomes apparent that honey was used as a base for giving medicines at an early date; and that honeys of pronounced medicinal effects were official during the early years of the U. S. P., while now the official honeys are only diluents for prescribing offensive medicines, and not usually of value medicinally themselves.

The honeys of squill, compound squill, oxymel of squill and sodium borate have been withdrawn from the later editions of the U. S. P., syrups and wines taking their places. This is due to a number of reasons: first, the keeping properties of syrups and wines are far better than those of honey; second, the price of honey is so much greater than that of syrup that the above changes were made; third, the convenience of obtaining sugar over that of honey in different localities makes it more practicable to use the sugar.

One honey has been official in all the U. S. P.'s up to date,—the clarified honey. The official Latin title was changed in the 1900 U. S. P. from Mel Despumatum to Mel Depuratum, but the ingredients and process of manufacture are the same. Mel Rosae has been official since 1840 and is the most widely used honey today. This is probably due

to the flavor and aroma of the rose, which makes the honey a good excipient in prescribing offensive drugs. Honey itself was made official in 1880. This was due to the fact that honey was becoming used so extensively, that adulterations became extensive and a standard honey was necessary. It has been proven that the U. S. P. requirements for honey are too strict and pure, natural honeys do not come within its description.

The most interesting honey chemically is the Mel Sodii Boratis. In this honey boric acid and sodium meta borate are formed from the action of dextrose and levulose upon the sodium borate in the presence of water. This honey was official from 1860 to 1880.

Dunstan, W. R.

1883.

The Action of Some Polyhydric Alcohols upon Borax.

Am. Journ., Ph., 55, p. 47.

The author points out (p.453) that the acidity of Mel Boracis is due to boric acid, which has been produced by the action of the dextrose and levulose contained in the honey on the borax in the presence of water. Sodium meta borate is also formed.

Maisch, J. M.

1883.

Comparison of Galenical Preparations of the U. S. and German Pharmacopoeias.

Am. Journal. Ph., 55, p. 443.

(Mel despumatum, U. S; Mel depuratum, P. G)

No process for making clarified honey is given in the P. G., but this standard requires that the honey should be clear, have a sp. gr. of 1.30 and be of yellowish or slightly brown color.

Carcano, L.

1893.

Eisen haeltiger Honig.

Bolletino Chimico-Farmaceutico, ____, p. ____.

(Pharm. Post, 26, p. 104; Proc. A. Ph., A., 41, p. 716.)

The author claims that some natural honeys contain iron and that the presence of this metal interferes with the preparation of Mel rosatum, the tannin of the rose petals producing a dirty color with the iron.

(The editor of the Ph. Post is of the opinion that if clarified honey be used no such difficulty will be experienced.)

Dietrich, Karl

1895.

Ein Beitrag zur Mikroskopie des Honigs.

Pharm. Centralh., 36, p. 592.

(Proc. A. Ph., A., 44, p. 660.)

The author points out a method for distinguishing between natural and artificial honey. The substances which are to be considered upon examination are pollen-granules, sugar crystals, wax, vegetable and animal fragments, and starch grains.

Kebler, L. F.

1895.

Laboratory Notes.

Am. Journ. Pharm., 67, p. 27.

The author says that the U. S. P. requirements for honey are too strict. He found that honey with an excess of chlorides was pure honey. The absolute alcohol test is an excessive requirement, for lots of pure honey will not conform to that test. This is a test for dextrin, and pure honey was found which contained 4 p.c. of dextrin. Artificial honey is made which cannot be distinguished from pure honey.

Kebler, L. F.

1896.

Poisonous Honey.

Am. Journ., Ph., 68, p. 519.

The poisonous properties of a sample of honey were attributed to andromedotoxin. Whether the poison was formed in the process of honey by making by the bees, or found in the nectaries of flowers, was not ascertained.

1898.

Kosohonig.

Pharm. Post., 31, p. 120. (Proc.A.Ph.,A.,46,p.882.)

A brief account of tests made with honey gathered from *Brayera anthelmintica* in Abyssinica. The honey is reported as possessing decided anthelmintic properties without producing any undesirable side or after effects.

Haenle,

1899.

Ph. Zt.,____, p. 742.(Am.Journ.Pharm.,72,p.228.)

" Bees fed exclusively on a 33 per cent sugar solution, the polarization angle of which was -96° , yielding a honey containing dextrin and polarizing at -3° . Curiously enough, the same sugar solution, inverted by tartaric acid to -13° , yielded a similar but dextrin-free honey, likewise polarizing at -3° . The same bees, allowed freedom, deposited a natural dextrin-free honey polarizing at -35° . The writer noticed that his bees brought honey in August___ practically at the close of flowering time—and, seeking cause, traced the insects to a neighboring preserve factory. Here the insects sought their supplies from the fresh fruit rather than from the abundant sugar, showing their preference for invert sugar.

The honey from this source contained traces of dextrin and polarized at -12° to -15° . The article closes with a report on an examination of commercial honey made from equal parts of natural honey and pure inverted sugar. Such sophistications can be easily detected, since they polarize at about -15° ."

La Wall, C. H. and R.C. Pursel.

1900.

Laboratory Notes.

Am. Journ. Pharm., 72, p. 377.

" Honey:- The examination of a number of samples of honey, representing several thousand pounds, showed this product to conform to the U. S. P. requirement in every respect, and the polariscope test also indicated the absence of adulteration. The results of ten samples showed the sp. gr. to vary from 1.4277 to 1.4904 with an average ash content of 0.09 p.c."

Kebler, L. F.

1902.

Some Recent Drug Adulterations.

Am. Journ. Ph., 74, p. 140. (Proc. A.Ph.A., 50, p. 899.)

A sample of honey being dextrogyrate is pronounced adulterated with cane sugar.

Ley, H.

1903.

Ein Beitrag zur Honig faelschungsfrage.

Phar. Ztg., 48, p. 603. (Proc. A. Ph. A., 52, p. 747.)

The author points out a method of distinction between natural and artificial honey. This method depends upon characteristic color reactions. When samples are diluted with twice their weight of water, filtered and 5 cc. of filtrate mixed with a few drops of reagent (a solution of silver oxide in aqueous ammonia) in a test tube which is stoppered with cotton and immediately heated for 5 minutes in a boiling water bath.

Natural honey gives a dark color with greenish-yellow on the walls of the tube. Artificial honey becomes black with no greenish-yellow color.

Shutt, F. T. and A. T. Charron.

1903.

Determination of Moisture in Honey.

Chemical News, 87, p. 195. (Proc. A.Ph. A., 51, p. 811.)

The authors report on the moisture content of a large number of samples of honey.

Selser, Wm. A.

1904.

The Origin and Formation of Honey, and its Relation to the Polariscopes.

Am. Journ. Pharm., 76, p. 267. (Proc. A.Ph. A., 52, p. 746.)

The author ascertained the influence of the sources from which bees obtain the honey on the angle of rotation of the honey itself. In all cases the original angle of rotation, also that of the inverted honey, was laevograte, varying from -6° to -18.7° for the original honey, and from -6.5° to -22° for the inverted honey.

Utz, F.

1908.

Ueber den Saeuregehalt des Bienenhonigs.

Pharm. Post, 41, p. 69. (Pharm. Ztg., 53, p. 99;

Proc. A. Ph. A., 56, p. 255.)

The author finds that the P. G. definition of permissible acidity in honey, viz. 0.23 p. c. in the crude and 0.184 p. c. in the purified, calculated as formic acid, is in so far correct as it represents average figures. He also finds natural honeys with higher figures. Pure bees honey was found to vary in its acidity from 0.0644 p. c., which figures are lowered by heating the honey.

Werner, F.

1908.

Eine Reaktion zur Erkennung und Unterscheidung
von Naturhonigen.

Pharm. Ztg., 53, p. 330. (Proc. A.Ph. A., 56, p.252)

The author's method is based on the fact that in artificial inversion of cane sugar, certain products of decomposition are formed, which are soluble in ether and which are not present in natural honey. The residue of the ether extract of the artificial inversion product gives a color reaction with a solution of a few drops of 1 p.c. sol. of resorcin in fuming Hydrochloric Acid.

Prado, De

1909.

Neue Darreichungsweise von Jod Kalium.

Soc. de med de Gand, _____, p. _____.

(Bull.gen de Therap., _____, p.827;

Apoth. Zeitung 24, p. 467; Am. Journ. Ph., 81, p. ___.)

Honey diluted with water and flavored with brandy, when made alkaline with K_2CO_3 , prevents gastric disturbances frequently caused by potassium iodide alone.

B

1910

Mel despumatum.

Pharm. Ztg., 55, p.232.(Proc. A. Ph. A., 58, p.224.)

The honey should not be boiled, as directed by the P. G., so that the article may not be deprived of its aroma. Clarification is only a secondary consideration to liquefaction.

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