

Honey Analysis

An overview of honey analysis, with the regulatory requirements, ends the analytical part of this compilation. The intention is to highlight where HPLC methods are being regarded official for Honey analysis and how the Merck Millipore chromatography team can aid you in this field.

Codex Alimentarius Honey Standard – CODEX STAN 12-1981

"1.1 Part One of this Standard applies to all honeys produced by honey bees and covers all styles of honey presentations which are processed and ultimately intended for direct consumption. Part Two covers honey for industrial uses or as an ingredient in other foods.

1.2 Part Two of this Standard also covers honey which is packed for sale in bulk containers, which may be repacked into retail packs."

In this standard a few tests may or can be based on HPLC analysis. On the following pages, a number of application notes with relevance to aforementioned text are included.

Sugars content (sum of both fructose and glucose, and another measure for sucrose content)

If you are interested in an application with all these three sugars in same run please visit the analytical application finder – www.merckmillipore.com/AAF or the chromatography application world at www.merckmillipore.com/chromatography

Hydroxymethylfurfural content (AOAC 980.23)

" The hydroxymethylfurfural content of honey after processing and/or blending shall not be more than 40 mg/kg. However, in the case of honey of declared origin from countries or regions with tropical ambient temperatures, and blends of these honeys, the HMF content shall not be more than 80 mg/kg."

Residues of pesticides and veterinary drugs

" The products covered by this standard shall comply with those maximum residue limits for honey established by the Codex Alimentarius Commission."

Herein exemplified by an application on sulfonamides and another on pesticides.

Further reading:

<http://teca.fao.org/resource/codex-alimentarius-honey-standard>

CODEX STAN 12-1981 – www.codexalimentarius.org

AOC 980.23

For more information about the Codex Alimentarius, visit the website:

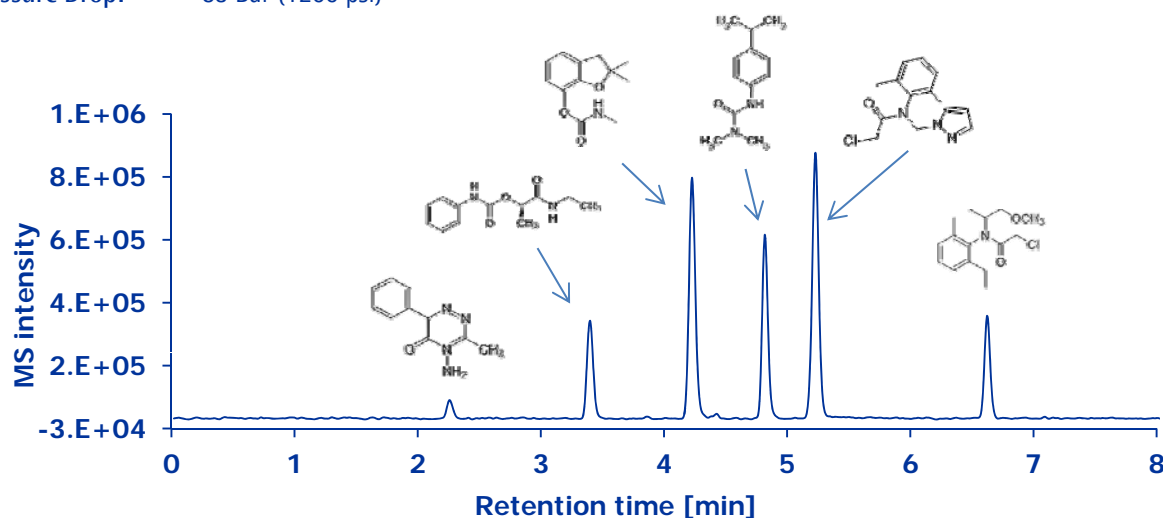
http://www.codexalimentarius.net/web/index_en.jsp

Pesticides in porcine kidney

Chromolith® CapRod® RP-18 endcapped

Chromatographic Conditions

Column:	Chromolith® CapRod RP-18 endcapped, 150x0.1 mm	(1.50402.0001)
Injection:	2.5 nL	
Detection:	nano-ESI(+) MS, 100–600 m/z	
Flow Rate:	1.24 µL/min	
Mobile Phase :	A: water + 0.1 % formic acid B: acetonitrile + 0.1 % formic acid	
Gradient:	20 % B to 90 % B in 10 min	
Temperature:	Ambient	
Diluent	Acetonitrile	
Sample:	1 g porcine kidney macerated and spiked with 2 mL spike solution (Metamitron, Carbetamid, Carbofuran, Isoproturon, Metazachlor, and Metolachlor – 60–500 µg/mL in acetonitrile). Extraction with water/acetonitrile 80:20 (v/v), then SPE with LiChrolut® cartridge (RP-18). Finally 0.45 µm filtration prior to analysis..	
Pressure Drop:	83 Bar (1200 psi)	



Chromatographic Data

No.	Compound	Retention Time (min)	[M+H] ⁺
1	Metamitron	2.3	202.96
2	Carbetamid	3.4	237.04
3	Carbofuran	4.2	222.02
4	Isoproturon	4.8	207.05
5	Metazachlor	5.2	278.09
6	Metolachlor	6.6	284.06