

Analytical results for opiate alkaloids on poppy seeds from 2019 sampling assignment

The data in this table represent 21 samples of poppy seeds

Sample number	Morphine concentration (ppm)* [a]	St dev (morphine)	Codeine concentration (ppm)* [a]	St dev (codeine)
1	200	60	85	24
2	70	37	8	5
3	320	95	69	21
4	6.2	4.9	139	66
5	12	13	125	7
6	150	23	187	34
7	327	210	30	30
8	286	120	54	28
9	237	230	43	42
10	9.2	0.7	0.8	0.1
11	1.1	1.5	172	73
12	1.4	2.4	163	29
13	21	7	243	93
14	141	58	29	21
15	2.1	2.5	207	19
16	2.2	1.6	238	15
17	99	10	22	16
18	118	41	25	20
19	1.4	0.9	213	66
20	2.8	6.5	255	120
21	520	84	67	5

[a] To determine the opiate alkaloid concentration, FDA used a modification of the liquid chromatography with mass spectral detection (LC-MS/MS) method described in Powers, *et al.*, J of Forensic Sciences July 2018, Vol. 63, No. 4, 1229-1235. The modification included reducing the amounts of sample and solvent for each preparation.

Limits of Quantitation (LOQs) are 0.1 ppm morphine and 0.08 ppm codeine; Limits of Detection (LODs) are 0.03 ppm morphine and 0.02 ppm codeine

* For opiate alkaloid on poppy seeds, parts per million (ppm) is equal to mg/kg