

California Avocado Association 1917 Annual Report 3: 92-93

CHEMICAL CONSTANTS OF AVOCADO OIL

F. W. Albro

University of California

In connection with an experiment to determine the digestibility of the oil of the avocado, carried out by Dr. H. A. Mattill in this laboratory, it was thought to be of interest to determine the chemical constants, and compare it with other common edible oils.

A great deal of difficulty was had in extracting the oil from the fresh pulp. Pressing, centrifuging, filtering and extracting with solvents met with but little success. Enough was extracted from the fresh pulp with petrolic ether, however, to compare it with oil from the dried pulp either by pressing or extracting with solvents. The pulp was dried at 50° C in a steam jacketed vacuum oven for ten hours and extracted with low-boiling gasoline. The dark colored solution was filtered through animal charcoal, which removed the rather unpleasant odor, bitter taste, and resinous material. The solution was placed on a steam bath and the solvent entirely removed with a stream of CO₂ bubbled through it. The oil was then cooled to 5° C, and decanted from a white precipitate, which, if not removed by cooling, will make the oil cloudy at room temperature. The oil so obtained was of a light golden color, bland and pleasant tasting.

The chemical constants found are given in the following table:

TABLE SHOWING CHEMICAL CONSTANTS OF AVOCADO AND OTHER OILS

Chemical Constants	Avocado Oil from Fresh Pulp	Avocado Oil from Dried Pulp	Olive Oil	Butter Fat	Cottonseed Oil
Iodine Value	88.0-90	85.0-88	79.0-88	26.0-38	108.0-110
Insol. Fatty Acids (Hehner Value) . . . . .	.....	92.5	95.0	86.5-89.8	95.0-96
Acid Value (Free Oleic Acid)	8.0-12	4.0-6	1.5-8.3	0.45-35.0	0.0
Maumene Value . . . . .	.....	65.0	41.5-45	.....	75.0-90
Specific Temperature Reaction . . . . .	.....	156.0-157	89.0-94	.....	169.0-170
Av. Mol. Wt. of Fatty Acids . . . . .	.....	282.2	280.0	255.0-267	269.0-277
Saponification Value	177.0-178	177.0-178	185.0-196	220.0-233	193.0-195
Reichert Meissl Value	3.8-4	3.8-4	0.6	25.0-32	0.95
Polenske Value	0.0	0.0	.....	1.6-3.5	.....
Acetyl Value (Real) . . . . .	.....	11.3	10.6	1.9-8.6	7.6-18
Refractive Index of Oil (15.6° C)	1.469	1.47	1.4713	1.4536*	1.4737-57
Refractive Index of Fatty Acids 40°	1.455	1.454	.....	.....	1.446**
Oleic Acid	82.0-85%	80.85%	70.0-75%	30.35%	.....

*40° C.

**60° C.