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ANALYTICAL AND REPORTING PROCEDURES

During 1982-1983, the science and technical committee of the NASC reviewed a large body of data on aloe vera leaves and processed product. The data was collected by having several standard analyses performed on the samples and one analysis developed by the Southwest Institute of Natural Sources (SWINS) that involves High Pressure Liquid Chromatography (HPLC) Included in this report is an analytical profile of aloe vera leaves compiled from leaves collected over a 14 month period and from several locations in the lower Rio Grande Valley of Texas.

The data on leaves and processed aloe vera was examined closely by the committee in an effort to determine if some of these ingredients were stable enough in the product to serve as accurate reference points in defining aloe vera. Because aloe vera, a succulent, was found to fluctuate erratically in the amounts of these constituents and their ratios to each other (due to seasonal, climatic, and other changes), it was necessary to define the product that would be available in a normal year.

The committee found that the calcium and magnesium content, the total solids and the HPLC ratio mentioned above appeared to be stable indicators of the concentration of ingredients in the plant and in the processed product. Of these four points of reference, it was found that some are more reliable indicators than others. Therefore, the committee, after applying many combinations to the available data on known samples, decided on the formula below as a method of defining 100 percent aloe vera. Using this formula, 100 percent aloe vera would have a total reading of 1,000.

Calcium as mg/dl	× 12	=	_____
HPLC Ratio*	× 1000	=	_____
Mg as mg/dl	× 29	=	_____
Total solids as %	× 29	=	_____
	TOTAL	=	_____

As part of Good Manufacturing Practices for aloe vera products, an aloe vera processor or supplier should be willing to provide a certificate supplying the above information along with bacteriological information.

*The method for determining the HPLC ratio is available from NASC.

Analytical Profile of Aloe Vera Leaves

Test	Units	Minimum	Maximum	Average
SOLIDS	%	0.75	1.50	0.92
WATER	%	98.5	99.25	99.1
GLUCOSE	mg/dl	28.0	103.0	77.8
PURINE	mg/dl	0.1	5.6	0.8
UREA-NITROGEN	mg/dl	1.0	1.0	1.0
CREATININE	mg/dl	0.1	1.5	0.4
SODIUM	meq/l	4.0	13.0	8.7
POTASSIUM	meq/l	10.0	22.5	13.4
CHLORIDE	meq/l	1.0	11.0	3.0
CO_2	meq/l	1.0	7.0	1.7
CALCIUM	mg/dl	19.4	48.5	30.0
CAL. CALCIUM	mg/dl	23.3	52.3	33.8
MAGNESIUM	mg/dl	3.2	4.7	3.9
ZINC	mg/dl	14.0	77.0	31.0
PHOSPHORUS	mg/dl	0.6	1.3	1.0
TOTAL PROTEIN	gm/dl	0.1	0.4	0.2
ALBUMIN	gm/dl	0.1	0.5	0.14
GLOBULIN	gm/dl	0.0	2.0	0.06
ALKALINE PHOSPHATASE	mg/dl	1.0	50.0	18.0
SGOTRANSAMINASE	mg/dl	6.0	49.0	21.0
SGPTRANSAMINASE	mg/dl	8.0	85.0	24.0
LACTIC DEHYDROGENASE	mg/dl	0.0	9.0	3.0
AMYLASE	mg/dl	0.0	2.0	1.0
LIPASE	units/dl	0.0	1.6	0.5
CHOLESTROL	mg/dl	4.0	12.0	8.0
TRIGLYCERIDES	mg/dl	1.0	12.0	2.4
IRON	mcg/dl	3.0	30.0	15.0
B12	pg/ml	141.0	403.0	265.0
FOLIC ACID	ng/ml	2.7	20.0	13.2
OSMOLARITY	mOsm/kg	43.0	67.0	60.0
HPLC RATIO		0.51	1.1	0.67

The above data was taken from leaves from aloe vera plants grown in soil gathered over a 14-month period and from several sources and locations in the lower Rio Grande Valley of Texas.