Understanding Aloin Levels

Aloin A and B are the only anthraquinones found in Aloe *macroclada* (as well as in Aloe *vera*). Alomac’s manual leaf gel extraction procedures keep total aloin levels consistently below 10ppm. This level of aloin in the highest recommended Alomac doses is safe by a wide margin. Concentrations of aloin found (by third-party laboratory testing) are expressed as in unconcentrated gel (1X gel), which is the standard practice in the industry. Aloe *macroclada* gel is 1.5% solids after drying, or 98.5% water.

The actual aloin concentration (ppm) of dry product is higher than wet simply because of the removal of water, however, the concentration is always expressed as when 100% wet. When Alomac is blended with other ingredients the concentration in final retail product is reduced.

The number of doses per day times the concentration gives the amount consumed.



The concentration of anything being consumed must always be considered together with the quantity being consumed. Concentrations are often presented as percentages (%) or as parts per million (ppm) in a product. Another way of expressing ppm of aloin is micrograms per gram (ug/g), meaning in a gram of aloe gel, a certain number of micrograms is aloin. A product with higher concentrations of aloin which is consumed in small amounts can result in less exposure than a product with a lower aloin concentration consumed in larger quantities.

Showing some math, and setting <10ppm to equal 10ppm and <1ppm to 1ppm, results in:

1. 200mg consumed of 10ppm: 200mg = 0.2g, 0.2g X 10 ug/g = 2ug
2. 100g consumed of 1ppm: 100g X 1 ug/g = 100ug

The amount of aloin, such as 2ug or 100ug, consumed per day is the important number to use when thinking about safety. Typical consumption may be 2-3 doses per day. In this example:

2ug x 2 doses/day = 4 ug/day to 2ug x 3 doses = 6 ug/day

The aloin expression as if in original unconcentrated 1X gel continues into the final retail product when calculating aloin concentrations. For example, if a capsule product is 1100mg per dose containing 200mg of Alomac, then for expressing aloin concentration the 200mg is replaced by the 1X wet weight as follows:

Express the gel’s solid content (1.5%) as a decimal percentage (0.015) and divide the 200mg by 0.015 = 13,333mg. 200mg / 0.015 = 13,333mg (gel weight before concentrating)

Subtract the 200mg dry Alomac from 1100mg total contents and add 13,333mg as wet Alomac.

1100mg - 200mg + 13,333mg = 14,233mg (capsule content weight expressed as 1X gel)

Once the amount of aloin is determined in a sample, typically expressed in microgram units (ug), that value is divided by the expressed weight (14,233mg = 14.23g) to obtain the concentration (ug/g = ppm). This calculation method applies to aloin in aloe gel to consistently express the concentration regardless of how concentrated the gel is in the final product.