

The Original Superjuice – Inside/Out Studies of the Health Benefits of Aloe vera

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Abstract

Although the market is presently flooded with numerous products defining themselves as the “superjuice”, Aloe vera is still the king of the mountain. After centuries of widespread usage and volumes of scientific research, coupled with an unprecedented level of consumer confidence, it can be assumed that Aloe vera is still the most widely recognized health product in the botanical market. Herein, we present recently conducted research and clinical studies involving the attributes of a new and novel fraction from the lily of the desert. Results show that this fraction exhibits widespread benefits to the end-user in both topical and ingestible forms making it a prime candidate for use in nutraceutical applications.

Introduction

In recent years, the health food market has become inundated with novel health drinks promoting the term “superjuice”. Noni, mangosteen, acai, guava, jackfruit or durian; these compositions have incited new levels of interest in the public health food market. However, one could state that Aloe vera is at least the original, if not the supreme, superjuice. Aloe vera remains as the most widely recognized and broadly studied health food drink on the market today.

Scientific literature cites at least 1438 references involving Aloe vera over the last seventy years. Gastroprotective, immunomodulation, wound healing, anti-hypoglycemic, antifungal, antidiabetic, anticancer, anti-inflammatory and recently, the increased permeation and enhanced bioavailability of actives are just some of the studied effects attributed to Aloe vera. The majority of these studies suggest that the polysaccharide content of the plant is the main active principle ⁽¹⁾.

All Aloe vera is not Created Equal

Growth conditions, time of harvest, storage parameters and processing all affect the polysaccharide content of the plant or commercial product. Like so many other desert plants, Aloe vera produces an outer water-impermeable rind that encapsulates long-chain, high-molecular weight, water-binding

polysaccharides in order to maintain internal water content at optimal levels. But weather extremes such as drought, flooding or harsh temperatures all affect polysaccharide content. Harvesting and storage of the leaves cause changes as well. Processing of the juice under extreme temperatures or high shear may also deleteriously affect the polysaccharide content. Finally, packaging and formulation are still another factor in the maintenance of the polysaccharide content of commercial Aloe vera products.

The potential for a wide variation in commercial Aloe vera products is exemplified in a previously published and revealing study conducted by the University of Mississippi, School of Pharmacy ⁽²⁾. In this study, eighteen commercial preparations were analyzed for high-molecular weight polysaccharide content. Results suggest that nine of the eighteen products tested contained either no detectable high-molecular weight polysaccharide content (7 samples tested) or only trace (< 0.2 mg/ml) amounts (2 samples tested). Of the remaining nine samples tested, high-molecular weight polysaccharide content of the commercial preparations ranged from 0.22 – 1.2 mg/ ml.

Studies such as this suggest that commercial preparations of Aloe vera juice do, in fact, exhibit a wide variety of polysaccharide content. However, it must be stated that the analytical methods used in this test only measured the total concentration of high molecular weight polysaccharide of the preparations. The chemical identity of the individual polysaccharide structures known to occur in Aloe vera could not be distinguished from those of other high-molecular weight polysaccharides (such as dextrans or hydroxycelluloses) with this method. Thus, while quantitative information can be derived from this study, no qualitative information was determined.

Previous Studies of Immunostimulatory Activity

In a second previously study, the immunostimulatory properties of the Aloe vera plant were utilized as a comparative factor to determine the qualitative properties of Aloe vera preparations. This study measured the degree of macrophage activation by