

Botanical Science Helps To Develop A New Relief For Human Suffering

By Claud L. Horn¹

THE freshly cut leaves of the Barbados aloe, *Aloe vulgaris* Lam.², have been known for a long time by the country people of Puerto Rico to be an effective remedy for common burns. Recently the leaves of this plant have assumed importance in the curing of X-ray and radium burns that would not respond to any other treatment. This plant and some related species are also the source of a purgative, Barbados aloe of the pharmacopoeias, which is the dessicated sap from the leaves.

Aloe vulgaris, a member of the Lily family, bears thick, curved leaves, about 14 to 18 inches long and without petioles. These leaves are borne about the base of the flowering stalk that comes from an underground stem. The interior of the leaves, which are extremely fleshy, is so watery and the cell walls are so transparent that one can see directly into a freshly cut leaf to a depth of about 1 inch. When the leaves are crushed or the skin is otherwise broken, they give off a nauseating odor.

This plant is a native of the Mediterranean region and, because of its vitality, has become naturalized in many of the warm parts of the world. It is common along the banks of ravines and fence rows in the southern part of Puerto Rico, where, under the common name of ZÁBILA, it grows in groups such as that shown in the illustration. *Aloe vulgaris* also occurs on other islands of the West Indies, and on the keys of southern Florida, where it is known as "bamboo." Small (11)³ attributed the name of Bamboo Key, off the coast of Florida, to the fact that *Aloe vulgaris* is so abundant on that key.

As is true with many aloes, the Barbados aloe is quite ornamental, its pretty inflorescence, yellow to burnt orange in color, being borne on a stalk about twice as high as the leaves. In Puerto Rico, it is often grown as a pot plant in dooryards.

Much has been written about the medicinal values of Barbados aloe. Grosourdy, in his lengthy discussion published in Paris in 1864 (8) stated that C. Lemaire found that when the crude, crushed leaves were applied to common burns the severe pain immediately stopped and the usual lesions did not develop.

The earliest mention of its use in medicine that Asenjo (2) found was in the fourth century B.C. . Asenjo briefly summarized the value of the

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²*Aloe vulgaris* Lam. is the correct name for the aloe referred to in the literature, both scientific and popular, as *Aloe vera* L.

³Figures in parentheses refer to the bibliography at the end of the article.



Barbados aloe in bloom at the New York Botanical Garden.

plant in the treatment of diseases of the chest, wounds, ringworm, roundworm, and as a purgative, in addition to its use in South America in the treatment of common burns. A search of available literature



Specimen plants of *Aloe vulgaris* (*A. vera*) in one of the houses of economic plants at the New York Botanical Garden.

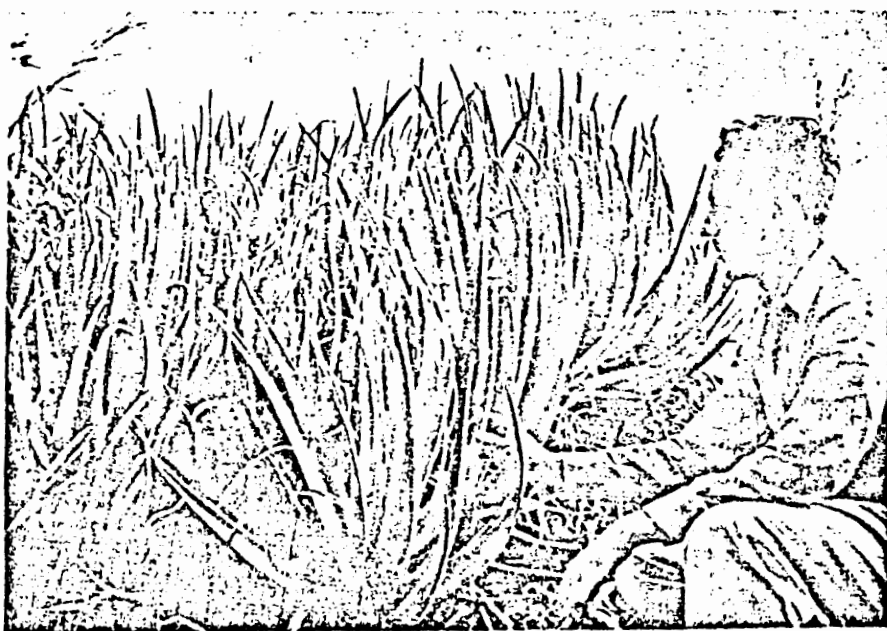
shows this aloe to have been used in the treatment of some 24 ailments. Further information on the use of *Aloe vulgaris* for burns is recorded in a number of publications (1, 3, 4, 5, 7, 9, 10, 12).

In 1937, during the writer's visit to the Missouri Botanical Garden in St. Louis, Ladislaus Cutak, in charge of the succulent-plant collection, called attention to the fact that the freshly cut leaves of *Aloe vulgaris* had a short time previously been used in the treatment of severe X-ray burns at a St. Louis infirmary. After standard burn treatments had failed to give relief, the Missouri Botanical Garden was asked if it had any herb that might be tried. In his search of the literature, Cutak found that *Aloe vulgaris* had been recorded as an effective burn remedy. The Missouri Botanical Garden supplied fresh leaves that were applied to the affected parts. Apparent improvement was immediate and healing soon complete. Thereafter, the demand for leaves increased to such an extent that it taxed the supply of the collection at the garden. Cutak later published (6) an account of this new use for this easily grown plant.

More recently, in response to equally urgent requests, the New York Botanical Garden has served the demand for leaves used by hospitals in the metropolitan area until the stock of this species at the Garden became reduced to only a few specimens. Ten plants shown on the greenhouse

bench in the illustration were obtained from Florida. Doctors kept begging for more leaves while the Garden's supply was temporarily depleted. The demand on local commercial greenhouses was also heavy. However, commercial plantings which have been made in southern Florida and plants now occurring naturally in Puerto Rico assure an ample supply of leaves. While the Botanical Gardens have, fortunately, been able to do valuable pioneer work in supplying leaves for use during early studies, the above sources now make it unnecessary to impair valuable specimen plants.

In 1938 the Puerto Rico Experiment Station of the United States Department of Agriculture, located at Mayaguez, began an investigation of *Aloe vulgaris* as a part of a study of new crops for Puerto Rico. Leaves of *Aloe vulgaris* used in clinical tests were transported from Puerto Rico to New Jersey in sound condition. The leaves retained their effectiveness for some time after being severed from the plant; harvested leaves, stored in an open shed in Puerto Rico for one month before shipment to the States were, upon arrival, found still to be effective as a burn remedy. With prompt shipment after cutting, it should be possible to transport leaves of this plant long distances and thus make its curative properties available to sufferers far removed from sources of supply.



A naturalized group of *Aloe vulgaris* on a bank in southwest Puerto Rico, where it grows in association with other xerophytic plants such as cacti, also *Parkinsonia aculeata*, *Pedilanthus angustifolius*, and *Plumiera alba*.

BIBLIOGRAPHY

1. Alemar, Carmelo, Jr. La Zábila, como cura para las quemaduras ocasionadas por los Rayos X. *Rev. Agr. Puerto Rico* 31:158. 1939.
2. Aseñjo, Conrado F. Apuntes acerca de las plantas medicinales de Puerto Rico, II. *Rev. Agr. Puerto Rico* 28:741-748. 1937.
3. Collins, C. and Collins, C. E. Roentgen dermatitis treated with fresh whole leaf of Aloe vera. *Amer. Jour. Roentgenol.* 33:396-397. 1935.
4. Collins, C. and Collins, C. E. AlvaGel as a therapeutic agent in the treatment of roentgen and radium burns. *Radiol. Rev. and Chicago Med. Rec.* 57:137-138. 1935.
5. Crewe, J. E. External use of aloes. *Minn. Med.* 20:670-673. 1937.
6. Cutak, Ladislaus. Aloe vera as a remedy for burns. *Mo. Bot. Gard. Bul.* 25:169-174. 1937.
7. Fine, A. and Brown, S. Cultivation and Clinical application of Aloe vera leaf. *Radiology* 31:735-736. 1938.
8. Grosourdy, D. Renato de. *El Médico Botánico Criollo*, vol. 3, p. 248, 308-311. Paris, 1864.
9. Loveman, A. B. Leaf of Aloe vera in the treatment of roentgen-ray ulcers: report of 2 additional cases. *Arch. of Dermatol. and Syphilol.* 36:838-843. 1937.
10. MacKee, G. M. X-rays and radium in the treatment of diseases of the skin. 3rd ed. p. 319 Philadelphia. 1938.
11. Small, John Kunkel. *Manual of the Southeastern Flora*. p. 302. New York. 1933.
12. Wright, C. S. Aloe vera in the treatment of roentgen ulcers and telangiectasis. *Arch. Dermatol. and Syphilol.* 33:413-433. 1936.

Botrytis Core-Rot Of Gladiolus

A Serious Disease of Corms Described

By B. O. Dodge and Thomas Laskaris

THE WRITERS in a brief note¹ recently reported rather extensive losses suffered by some gladiolus growers on Long Island, New York, caused by a typical *Botrytis* core-rot. The sorters call such diseased corms "thumbers," because in sorting out the corms prior to shipment they press the base of each one with the thumb and if it is found to yield to the pressure they reject it as diseased without question.

At the same time, the sorters press the top of the corms as well as the base for softness. In spite of their great care to eliminate all diseased corms, occasionally one will be passed. When such a corm is cut open it shows regions of brown decayed tissue connecting up with the core, which has decayed slightly from above rather than from below or at the base. Diseased tissue becomes deep brown and spongy, sometimes rather soft and wet, no doubt because of secondary invasion by bacteria or other fungi. Mites are often present in the spongy mass. Brown streaks extend from the center through the vascular bundles so that the arms of brown tissue extend to the surface where lesions up to a quarter of an inch in diameter are characteristic symptoms. As the photographs show, these surface lesions may be much elongated, especially in advanced stages of the disease. Old diseased corms frequently become shrunken and mummified. The crust of these mummies consists largely of compact dark-brown to black sclerotial tissue, formed by the *Botrytis*. Occasionally the central core-mass shrinks away or drops out, leaving a clear hole through the center of the corm.

¹ *Science* 93: 111. 1941.