

THE BOTANY OF ALOES.*

BY WILLIAM B. DAY.

THE ALOE PLANT.

The aloe plant belongs to the Lily family (*family Liliaceae*, tribe *Aloineae*). The genus Aloe takes its name from a latinized form of an Arabian name, and comprises between ninety and one hundred species, chiefly native to Africa. One species is found in the Mediterranean region, another is native to China. The aloe plants are succulent perennials, acaulescent or variously caulescent; leaves often large and crowded in rosettes or along the ends of the stems; flowers in spikose clusters, red or yellow, sometimes paler striped, equalled or surpassed by the stamens. In general aspect the medicinal aloe plants resemble much the century plant (*Agave americana*) but are smaller. However, aloe plants have been found in Natal that attained a height of thirty to sixty feet.

CULTIVATION.

Many species of aloe are cultivated as decorative plants for their stiff, harsh rugged habit. They require well-drained soil and but little water, and while of course, not hardy in temperate climates, they do well indoors. Extensive cultivation of medicinal aloes is carried on in the West Indies, chiefly on the island of Aruba but to lesser extent on the islands of Bonaire and Curaçao (Dutch West Indies). The offsets or cuttings are set out about eighteen inches apart in rows about the same distance apart, much as cabbages are started. The plants require little care. They bloom when a year old. Collection of the juice usually begins the second year and the plants continue to yield for about twelve years. Under favorable conditions the aloe plants produce offsets or sprouts abundantly and in Curaçao these are sold by thousands to growers.

PRODUCTION OF ALOES.

The aloe plants secrete a thin watery juice in thin-walled tubular cells which run lengthwise through the superficial portions of the leaves accompanying the vascular bundles. This juice is distinct from the thick mucilagenous juice which fills the parenchyma cells. After the close of the rainy season, the leaves are cut off the plants, close to the stem, and are stood on end with the cut end down, in a trough or other container. The aloetic juice is drained out without pressure and when a sufficient quantity has been collected it is evaporated to the consistency of a soft extract. In Aruba this evaporation of the juice is conducted in kettles over an open fire or in steam-jacketed vacuum pans. In Africa, the juice is often kept for a considerable time before evaporation, it ferments more or less, and is evaporated largely by exposure to sun and air, rather than by artificial heat. If the former method is employed the product is bright and shining, the so-called "capey aloes," though it becomes dull after prolonged exposure to air, if the slower method of sun-drying accompanied by more or less fermentation is pursued, the product is dull in appearance, constituting the so-called "hepatic aloes." While still soft the aloes is poured into containers where it hardens and in which it is shipped. West Indian aloes frequently comes in gourds, which have been emptied of their contents

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and then filled with the melted aloes, and having a piece of muslin plastered over the opening in the gourd. This variety also comes in tins or boxes. Socotrine aloes comes into commerce infrequently in goat skin (or monkey skin?) containers but more commonly in tins, boxes or kegs. It is occasionally quite soft when received, but quickly dries and hardens on keeping.

OFFICIAL SPECIES OF ALOES.

Aloe vera, Linne (*A. perfoliata* var. *vera*, Linne, *A. elongata*, Murray, *A. barbadensis*, Miller, *A. vulgaris* Lamarck, *A. flava*, Pers).—Stem or trunk attaining a height of 1 to 1½ feet. Leaves densely crowded, 12 to 20 inches long, dilated below, tapering to a blunt point; margins with pale prickles; surface smooth, shining, dark green sometimes white-blotched. Flowering stem 3 feet high; flowers erect in the bud, afterward pendulous, arranged in an erect terminal raceme; the persistent membranaceous bracts exceeding the pedicels. Flowers about 1 inch long, tubular, yellow. This species is apparently native to the Mediterranean region but widely introduced throughout the tropics. It is the source of Barbados, West Indian or Curaçao Aloes. *Aloe vera* var. *officinalis*, Baker (*A. officinalis*, Forsk., *A. rubescens*, D. C.) is a larger Arabian form. *Aloe vera* var. *Chinensis* (*A. indica*, Royle, *A. Chinensis*, Baker) is a smaller Asiatic form with red-tinged flowers.

Aloe Perryi, Baker.—Stem or trunk about one foot high, simple. Leaves spreading, about 15 inches long and tapering from a 2½ inch base, pale green, or reddish but not mottled, the margin beset with rather small brown-tipped prickles. Inflorescence about 1½ feet high, somewhat paniced; flowers 1 inch long, reddish, becoming yellow, the green-tipped segments much shorter than the slightly constructed tube.

This species is now stated to be source of Socotrine Aloes, long ascribed to *A. succotrina*, Lam.

Aloe ferox, Mill. (*A. perfoliata ferox*, Ait., *A. muricata*, Haw., *A. horrida*, Haw., *A. pseudoferox*, Salm-Dyck, *A. subferox*, Spreng., *Pachydendron ferox*, Haw., *P. pseudoferox*, Haw.).—Stem 3 to 10 ft. high sometimes forked. Leaves numerous curved, lanceolate, glaucous, becoming reddish, 4 to 5 inches wide at base, 28 inches long, more or less prickly on both faces, the purplish margin with rather large red-brown teeth. Flower stem 4 ft. high, flowers 1¼ in. long, greenish yellow, with smoky-tipped segments, longer than the rather narrow tube. Native to the Cape region. The official source of Cape Aloes, to which no doubt other species contribute.

PHARMACEUTICAL PREPARATIONS OF ALOES.*

BY CLYDE M. SNOW.

The popularity of aloes as a therapeutic agent is attested by its antiquity, its considerable number of preparations and the tenacity with which they have held their places in the official books of this as well as other countries and in the practice of medicine. * * *

Probably the oldest preparation of aloes as well as the oldest pharmaceutical preparation in existence is Hiera Picra. It would seem from literature that this preparation was for sale in the shops of Damascus 1000 years ago and in Rome and Alexandria 2000 years ago in much the same form as we find it to-day in our stores. The common theory seems to be that it had its origin in one of the Aesculapian temples. Le Clerc attributes the first hiera to Themison, a physician who practiced in Rome 50 B.C. He used 100 drachms of aloes, 1 ounce each of mastich, saffron, Indian nard, carpobalsamum and asarum. Galen used a similar formula but made it into an electuary with honey.

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