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NOTES ON SOME EDIBLE WILD PLANTS FOUND IN THE KALAHARI

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Abstract – Limited work done on edible, indigenous plants to date, mainly concerns seasonal species. To develop a more reliable guide on food-plant sources for survival conditions in the field, a study directed at a survey of non-seasonal plants is conducted in the Kalahari. Descriptions of six edible non-seasonal plants for the Kalahari are given.

Introduction

From a number of surveys undertaken to date it was found that the Kalahari has an abundance of seasonal, edible plants, but perennials that are detectable throughout the year are scarce. In most cases "survival" plants must be judged by their bulk, food and water potential. Because of the dry conditions prevailing in the Kalahari and the absence of surface water, plants with a high moisture content is vitally important for survival.

Many food plants have edible bulbs, tubers or other large underground storage organs. Many species are deciduous, and when leafless in winter are almost impossible to find unless a person is familiar with local veld conditions and skilled at recognizing the indigenous flora. Once such a plant is found, care must be taken in digging up the storage organ, as the thin, long brittle and often dehydrated connection between the surface and subterranean parts is easily broken. Under sur-

vival conditions, an intimate knowledge of the growth forms of edible and non-edible plants could mean the difference between life and death.

Methods

Two collecting trips were made to the Kalahari Gemsbok National Park, Republic of South Africa. Visits were also made to Colville Ranch, 40 km north of Kuruman in the Cape Province.

An importance rating was allocated to each plant depending on the following criteria: mass, nutritional value, frequency, detectability and ease of recognition, length of time available over a one-year period, depth below ground, preparation and need for cooking, palatability and identification in the field.

Plant material collected was sent to the National Herbarium in Pretoria for identification. In addition to herbarium material, 10 specimens were collected of each species and the mass of the edible parts determined when fresh. The average mass of the different plants was used as a guide to the amount of food available for each species. Chemical analysis of these plants and other data indicate their relative importance as food sources. As yet this information is unavailable. Valuable information on these plants was obtained from local inhabitants. Collecting of plants, preparation, cooking and tasting was done by the authors and the conclusions are our own.

The illustrations are drawn to life size by one of us (A.R.), under her maiden name. Certain information was gleaned from Story (1958), Silberbauer (1965) and Leistner (1967).

Results and Discussion

In both study areas all plants described were growing in sand-dune country, except for one species which grew in limestone outcrops in the dunes or on old river banks. Both areas are semi-desert regions with a low and unreliable rainfall which falls sporadically from November to April. In the Kalahari Gemsbok National Park the following non-seasonal plants were found to have high importance ratings for survival conditions according to the scale: *Stapelia mariantalensis* Nel, *Caralluma knobelii* (Phill.) Phill., *Cucumis naudinianus* (Sond.) Hook. f. and *Citrullus lanatus* (Thunb.) Matsumura and Nakai. The stapeliads when eaten raw, were pleasant tasting with a high moisture content. At first they were difficult to find, but with a little practice one is soon able to locate them. Both the cucumbers have a high water content and surprisingly they are available for longer periods during the year than originally suspected.

On Colville Ranch the two non-seasonal, important food plants found were *Coccinia sessilifolia* (Sond.) Cogn. and *Tylosema esculentum* (Burch.) Schreiber. However, many seasonal food plants were in evidence.

Plate 1. *Caralluma knobelii* (Phill.) Phill.

Plate 2. *Stapelia marientalensis* Nel

Plate 3. *Acanthosicyos naudiniana* (Sond.) Kuntze

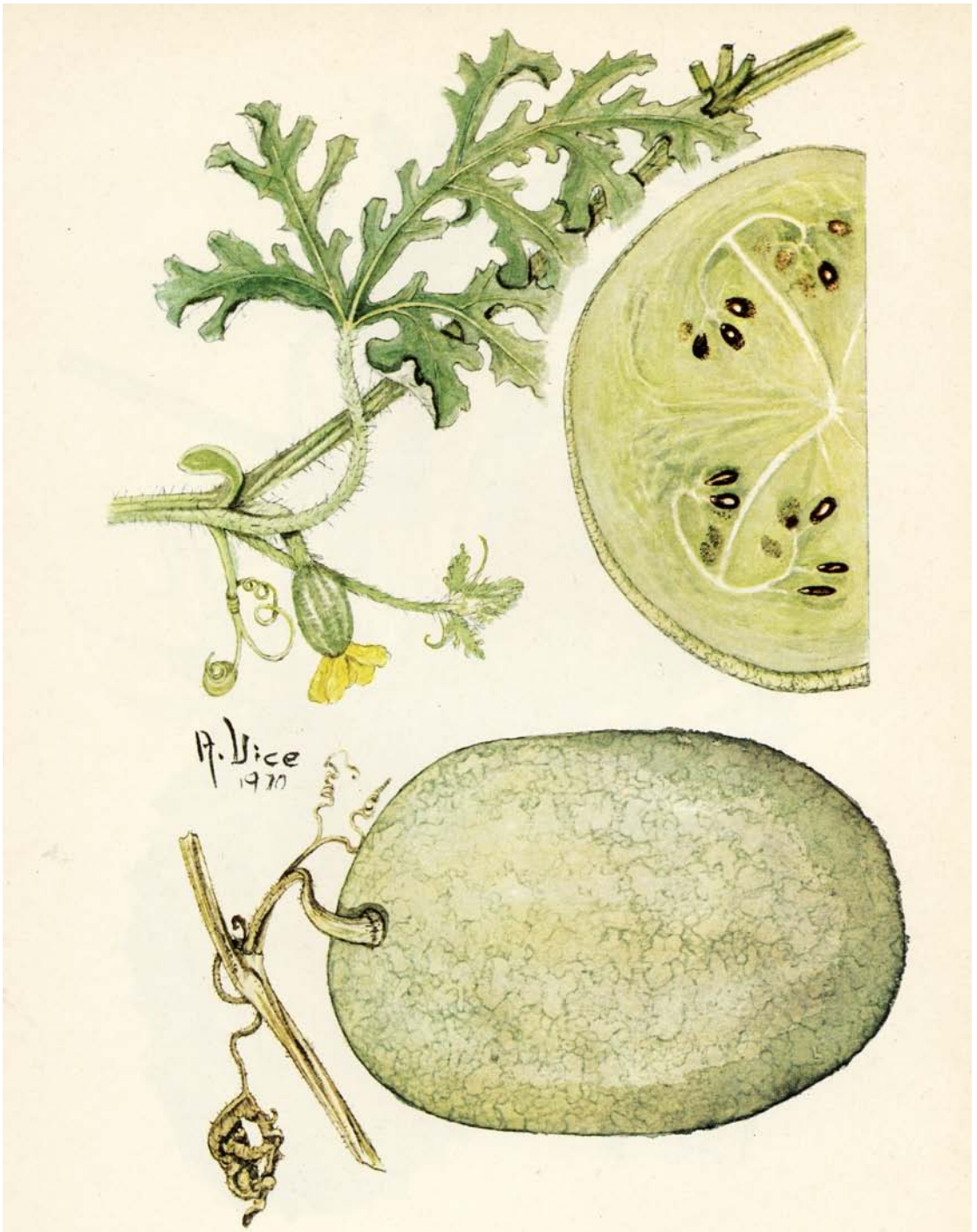

Plate 4. *Citrullus lanatus* (Thunb.) Matsumara and Nakai

Plate 5. *Coccinia sessifolia* (Sond.) Cogn.

Plate 6. *Tylosema esculentum* (Burch.) Schreiber

Caralluma knobelii (Phill.) Phill.

Found in the red dune sand at Twee Rivieren in the Kalahari Gemsbok National Park, and westwards from the camp. However, its occurence throughout the Park is reported. This stapeliad grows in clumps with succulent, erect stems up to 10 cm high and two cm in diameter. The stems are four-angled and almost square in section. During the growing season the stems and leaves are soft-green, sweet to the taste and full of moisture. As winter sets in, the leaves dry into small, sharp spines and the stems become a mottled greenish-grey. In their natural habitat they remain palatable, but specimens taken to the Highveld turned bitter. The underground parts were always better tasting than the green, aboveground stems and this seems to apply to most edible stapeliads.

Stapelia marientalensis Nel

This plant grows in small clumps on the top of limestone outcrops. The stems are unevenly four-angled, are a dull greyish-green, mottled with aubergine spots, particularly noticeable in the young stems. The brown and yellow flowers are produced on special outgrowths in the angles of the stems. Eaten raw or cooked the plant is juicy and pleasant tasting.

Acanthosicyos naudiniana (Sond.) Kuntze

Commonly known as Gemsbokkomkommer, Wild Melon or Makapana. This is a perennial herb growing in deep sand with a tuberous root which produces prostrate, annual stems from its crown in the growing season. The stems are branching, will often root at the nodes and have short, rigid and hooked tendrils. The deeply palmatifid leaves are very rough to the touch with the middle of the five lobes the longest. The fruit is ellipsoid, greenish-yellow when ripe and covered with large, blunt, raised spines.The green, translucent, jelly-like flesh can be eaten raw but is nearly always roasted. The roasting is done by placing the fruit in hot ashes near a fire, leaving it there for several hours and turning it over once or twice. The cooked flesh is delicious with a refreshing sweet-sour taste. Some fruits are better tasting than others and any bitter fruits encountered must be discarded as they may be toxic. Story (1958) states that the Bushmen roast the pips separately and then pound them to make an edible meal.

Citrullus lanatus (Thunb.) Matsumura and Nakai

This is the well-known Tsama melon, found in most of the sandy, dry areas of Southern Africa, and needs no description. It is unmistakable in the field. This is the most important food and moisture plant of the Kalahari and to the few remaining Bushmen who live in the desert this is

their only source of water for months on end. Antelope and small animals such as rodents and reptiles also rely on this plant for their existence. Apart from the moisture obtained from the flesh, vitamin C, minerals, fat, starch and riboflavin are also obtained from the seeds. It is usually readily available from January to September. When used for moisture, the melon is opened at one end, the central portion cut out and eaten raw. With a stick the rest of the pulp is then mashed to a watery mass inside the rind. This mass can then be consumed, or the hollowed fruit and its contents may be used as a pot, into which pieces of meat are added to make a stew. It is also said that the flavour is greatly improved if some edible gum from an *Acacia* sp. is added during cooking. The pips can also be put aside, dried and roasted later, then pounded without being peeled to make an edible meal (Story 1958).

Coccinia sessilifolia (Sond.) Cogn.

Known as a wild cucumber and has large, juicy underground storage organs and the annual stems bear pretty, sessile, smooth, blue-green leaves. Besides scrambling over small trees and shrubs, many fences on farms and along roads in the western half of South Africa are decorated during summer with this noticeable plant. The fruits are oblong-fusiform, green, with white stripes when young and a bright, shiny tomato red when ripe. The ripe fruits are insipid with a sweetish taste. The fruits are best gathered when green and cooked like a vegetable. However useful the fruits may be, it is the large, juicy roots of the plant that give it such a high survival rating. It can be chewed raw, the fibre being spat out, or else they can be roasted or boiled before being eaten. As the stems and leaves (despite being deciduous) remain visible for many months after the first frost, the plant is easily seen even from a distance and is not confused with any other plant.

Tylosema esculentum (Burch.) Schreiber

Is commonly known as the Braaiboontjie or Moramma nut and is usually found in open grasslands. It has a very large, edible, underground, tuberous root from which numerous, annual prostrate runners emerge in spring. The runners can reach a length of 6 m and bear y-shaped tendrils. The plant has characteristic, bi-lobed leaves, are glaucous-green and leathery, although soft, reddish-brown when young. The small yellow flowers produce rounded, oblong pods which are at first pale-pink in colour, change to apple-green, then to a dark purplish-pink and finally to brown. The nuts inside are rounded and a shiny brown.

This plant has a very high importance rating on our list as it is not only detectable throughout the year, but the larger tuber is nutritious with a high moisture content and is pleasant tasting. The tubers are relatively easy to dig up, provided that it is a fairly young plant. Old

plants have huge underground tubers and Botha *(pers. comm.)* from Colville Ranch has reported digging up one with a mass of approximately 300 kilogram. These large tubers are fibrous and difficult to chew although they still have a high moisture content. The moisture of the old tubers can be extracted by pounding pieces of it in a suitable container. The younger, smaller tubers make better eating especially after being boiled or roasted. The ripe nuts are considered a delicacy by people who know them. The nuts must be roasted before being eaten as they have an unpleasant taste when raw. The young green nuts can be boiled as a green vegetable and are very like cultivated green peas. The ripe nuts also make a good soup when soaked and prepared in the same way as split-peas and added to bouillon.

Conclusions

The Kalahari remains one of the most trying and dangerous areas to be in under field survival conditions. This is not due to the lack of vegetation, but to the absence of surface water and the difficulty of finding bulbs and roots when the deciduous above-ground parts have all but disappeared. It was found that the Kalahari has a fair number of survival plants, but most are easy to find only at certain times of the year.

The plants mentioned in this paper form but a fraction of those used by the Bushmen and other locals. According to the latter many plants would score high in the rating system but were not encountered during the collecting trips.

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