

Pedra Badejo Guide

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1 General Introduction

Macaronesia

The Azores, Madeira, the Canary Islands, the Savage Islands and the Capverdean Island are summed up as "Macaronesia".

The Islands of Cabo Verde

The Islands of Cabo Verde are situated between the tropical and sub-tropical region of the Atlantic, about 600 km off the coast of Senegal. They are the westernmost part of the Sahel zone, with an arid - semiarid climate. Summer rains are scarce but violent and lead to strong erosion. Strong north-easterly trade-winds are predominant. Following it there is the Canary-current which brings surface water from the northern Atlantic, but in summer warm water from the Guinea coast. Water temperatures are above 21 degrees the year round.

The islands are built of eruptive rocks and sediments. More than half of the population depends on subsistence farming under limiting climatic conditions on difficult soils. Landuse is mostly dry farming of corn, beans, peas, potatoes, sweet potatoes, manioc. On irrigated plots people plant sugar-cane, bananas and vegetables. Sugar-cane is mostly used to distil rum ("grogue") in many little local distilleries in the ribeiras.

The traditional staple diet and national dish is "Katchupa", a stew of mostly corn and beans.

2 Geology of the Capverdean Islands

In 1832 Ch. Darwin reported on these islands. He mentioned limestone deposits between mighty layers of lava. This would indicate that at some time the islands were covered by the sea.

Geographically the islands are divided into a northern and into a southern group. The islands in the east are probably older and more eroded than those in the west.

The islands stand on a local mesozoic underwater ridge (3500-4000m deep). To the west there is a deep-sea plain at about 5000 m. The islands were mostly created by volcanic activity in the neogene (miozene) age. So most volcanic rocks are younger than 30 mill. years. First huge underwater volcanoes we built, their magmas were largely alkali-basaltic. Basaltic vulcanites intruded mesozoic sediments. About 5 mill. years ago (Pliocene) the ocean floor was raised considerably. Today the lavas build characteristic table-mountains of several layers, sometimes many hundred meters high. In some places these plateau-basalts supersede marine conglomerates and limestones.

The layers of lave mostly consist of dark alkali-basalts and lighter "phonoliths". The eroded rocks of the islands were deposited in neogene sediments of biogenic limestone, sand dunes and conglomerates where rivers deposited gravel and sand in riverside terraces.

In the lower parts of river valleys you often find fluvial gravel deposits intertwined with marine terraces which were formed in former times when the seal level was higher than today.

Probably the islands were never connected with the African mainland, but possibly they were connected with each other. Terrestrial fauna and flora could settle on the islands towards the end of the Miocene (about 8 mill. years ago).

3 Vegetation zones

- Coastal vegetation (sandy or rocky shores)
- Coastal cliffs
- Mountains of hard volcanic rock
- Ribeiras, (wadis), dry river beds
- Achadas (plains)
- Lava fields

- Cliffs
- High Plateaus
- Mountain regions

Coastal areas and the dry plains are dominated by shrubs and semi-desert vegetation. From the coast to the mountainous interior there is an extensive transition of vegetation, with increasing humidity towards the mountains. Flora and fauna of the Capverdean Islands and Macaronesia in general are rich in endemic species (ca. 15%), a result of their long isolation. Most species originally came from north-western Africa.

In the big reforestation programmes starting in 1989 the most common tree species were *pinus canarensis* (a pine), *acacia alba* ("Espinheiro"), *prosopis juliflora* (a relative of the mimosa), *parkinsonia aculeate*, and some other tropical acacias and eucalyptus trees.

Salination of the soil

There are several reasons for salination: rising ground water, salty ground water, exchange of cationes and accumulation of Na, importation of salt from the nearby sea and basins with no drainage.

A special coastal habitat

HALOPHYTIC PLANTS can endure salt. They are common in coastal areas and around salt lakes. Scientists have studied their strategies to survive on these soils for a long time, because in the dry regions of our earth about the half of the arable land is threatened by salination. Partly the salt is filtered out right at the bark of the roots by a process of ultrafiltration. Salt is also excreted through special glands in the leaves. These halophytic plants can stand a few percent of salt in the water.

- *Sesuvium portulacastrum* also occurs at European shores. This plant stores surplus salt inside its cells, in little vacuoles. The salt is stored there safely so that it can not do any harm in other parts of the plant. When the salt-storage is full, the plant drops this leaf and younger, following leaves take the same role. This plant can endure over 5% of salination.

- *Philoxerus vermicularis*
- *Gomphrena (Philoxerus) vermicularis*: A plant with white flowers, common around the lagoons.
- *Zygophyllum fontanesii* Leaves standing opposite each other. *Zygophyllum* is a low succulent along the coast. Cylindrical leaves, red to brown. (Leaves are opposite and bifoliolate.) Flowers white to pink. Fruits round, a few millimetres in diameter.

4 Some other interesting plants

An example for a foreign invader

- *Lantana camara*
- *Verbenaceae*
- creol. Lantuna

Originally from tropical South-America. Abundant, robust weed in tropical and subtropical regions. In central Europe valued as a decorative plant. Different hybrid forms.

Leaves rough, spicy smell, flowers in half-bowls. Colour of the flower changes during the flowering period from yellow to orange and finally red. (Hence the German name "Changing rose")

Green berries, later black. During the famine of 1947 they were eaten, but they are poisonous, especially for children. They damage the liver and are a strong laxative. In Europe the plant is not used for medical purposes. In Brasil and some other countries :

Lantana is used against cough and as a spice.

An interesting endemic plant

Sarcostemma daltonii is a special plant of rocky, arid to semi-arid regions on Santiago and some other islands of Cabo Verde. It is a striking endemic plant here. The branches are bluish-green, have no leaves and drape the steep rocks and cliffs. They have little yellow flowers in winter. The milky latex is widely used to treat tooth-pain by wetting a piece of cotton with the sap and placing it onto the hole of the carious tooth. The pain will cease and the bad tooth will fall out.

A poisonous plant in warm countries

- *Calotropis procera*
- *Asclepiadaceae*
- creol. Bambardeira
- engl. Rubberbush "Apple of Sodom"

The high grow bush is native of Hindustan, but widely naturalized in the East and West Indies, Ceylon, Near East and Africa. Sometimes toxic to stock but potential as dry season protein supplement for cattle. For the strong fibre used as chewsticks in Africa. Used parts are the dried root freed from its outer cork layer. Many parts of the plant contain Calatropin, a very active poison of the digitalis type. The fibres are as strong as hemp.

The acrid juice hardens on the air. In Cabo Verde the people used it as a substitute for a plaster-cast to stabilize broken bones. It has been used for abortive purposes, as well as a treatment for chronic eczema and diarrhoea.

Traditional Medicine

In the traditional capverdean medicine people mostly use plants, only very rarely minerals or parts of animals.

Almost all the endemic plants and about half of the others are of medical importance. On these isolated islands people had to rely on medicinal plants. It is a pity that most young Capverdeans are mostly ignorant about their flora. Moreover most plants are known by different creolo names on different islands. How the medicinal plants are used is strongly influenced by European (Portuguese) culture. Poultices, infusions/teas and inhalation are the most common uses. We did not learn anything about magical rites of traditional healers. On our excursions with pupils and teachers we tried to collect as much traditional knowledge as possible.

A well known medicinal plant

- *Aloe barbadensis*
- *Liliaceae*
- creol. Babosa, Aloes

The plant is also known as *Aloe chinensis*, *A. elongata*, *A. indica*, *A. officinalis*, *A. perfoliata*, *A. vera*, *A. vulgaris*. Common in Northern Africa, the Mediterranean, Canaries, Madeira, Azores, India. Farmed in Venezuela and subtropical USA and Mexico.

Aloe-extracts have antimicrobial and antiviral properties. The gel is anti-inflammatory, helps to heal wounds and stimulates the immune system. It is used as medicine against abscesses, fever, venereal diseases, dandruffs, rheumatism and pain in general. The dried juice is used against indigestion and is found in many

commercial gall-medicines. The juice is extracted from the leaves by pressing and extraction. Locally people cut the leaves in halves and place the inner side on the skin. The plant is used widely in cosmetics, crèmes, sunblocks, antitranspirants etc.

Capverdeans call the pumpkin-like plant *Momordica cheirata* (Cucurbitaceae) "San Caietano". This plant contains charantine, an anti-diabetic more potent than most medicines used in Europe.

The "ox-eye" (Olho de boi) is *Solanum fuscum*. It contains steroid-alkaloids in its fruits which are supposed to help against different fungi.

An interesting story is connected with *argemone mexicana* ("carde santo"), a thistle-like, yellow "poppy": The plant is placed into the hands of deceased children, so that they can become angels. The seeds give oil with laxative properties. It also calms down the nerves and is used as a brillantine for the hair.

An example for an insect

The ant-lion is the larval stadium of an insect. It is common on all continents, especially in desert and semi-desert regions of Africa and Asia, in Europe they are rare.

In the Ribeiras and on dry, vegetationless, sandy ground you can see numerous little funnels some centimetres in diameter. These are the traps of the ant-lion.

The insect is about 10 mm in size and waits for prey at the bottom of the funnel. Ants which fall into the funnel and cannot escape on the sandy walls, are caught with pincers and devoured.

The development of the larval stadium takes two years, then it changes into a cocoon, covered with grains of sand. The fully developed insect belongs

to the group of hymenoptera and look roughly like dragonflies, but they fly mostly at night.

You might attract one with your electric bulbs at night. The insect lives for only a few weeks.