

Means of Plant Adaptation to the Desert Environment

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Introduction

Based on our national responsibility for preserving natural resources and protecting the environment, we present to you this series of articles on the means of plant defense in a desert environment. When we talk about the means of plant defense, we mean how plants adapt to their surrounding conditions, whether such conditions represent a threat or danger by humans or animals, or even adapting to the harsh environmental conditions that characterize the desert environment. This includes shortage of water, rain, dust storms, and other natural phenomena.

Here we will discuss the way the Arabs lived in the desert and how they benefited from plants by using the same methods that plants use to overcome the harshness of the desert environment. We will also offer some wisdom that we have extracted by reading between the lines, both for ourselves and the rising generation of youth, to help preserve our natural, God-given wealth.

Spiny or Thorny Shrubs: Benefits

Thorny tree: Every tree has thorns, but a thorny tree is one which grows thorns that are long, thick, and hardened.

Importance of Thorns to the Plant

A manifestation of the adaptation of plants to the desert is the transformation of some parts into sharp thorns. These thorns may be part of the stem or leaves, or even the flowers and fruits. The mutation of some parts of plants to thorns is to reduce the surface of the plant exposed to harsh weather factors, such as wind and drought. These thorns are also warning tools, with which plants repel harm from themselves from aggressors, such as humans and animals. While most of these thorny plants are good food for some pastoral animals, like sheep, camels, antelopes, and others, they employ several methods to ensure they do not perish under the influence of pastoral animals. This defense may take the form of the thorny plants growing in a low, creeper-like fashion along the ground, making it difficult for animals to devour them completely. Part of plant remains in the

ground, through which the plant can complete its life cycle. It is a grazed spiny plant that creeps along, growing low to the ground, and has no stem or trunk.

The Hooks of Monkey Thorn

Talking about the terrestrial thorny plants, it is worth mentioning the monkey thorn plant. The monkey plant is an annual plant, extending its ropes across the ground. It has fruits that have transformed into hard, round thorns, spreading across the ground as if they were hooks. This fruit is called “Hasak” and becomes harsh and complex. The monkey thorn plant is cited in the hadiths of the Messenger, where he described it as having hooks that scratch certain people when they pass the Path on the Day of Resurrection. In the past, the Arabs used monkey thorn in their wars, throwing it on horse runways to hinder the horses movements. They also used to place it on the walls of their gardens and homes to keep trespassers away. However, in our modern times, the monkey thorn is not spared the damage done by four-wheel-drive and ordinary vehicles; being used in the past to hinder the movement of horses in wars, monkey thorn today is under attack by the wheels of the cars driving over it.

While on the subject of the thorny fruits of monkey thorn sticking to other surfaces, it is worth mentioning that this is the way the plants are transported from one place to another, as they stick to the woolly coats of sheep and camels, just as the thorns of shamrocks, spines, and other plants do. And Ants carry the fruit of the thistle to their homes. These plants, although they are annual plants – that is, their life cycle completes in a few months of the year in the rainy season – they spread whenever the animals trample on them and, thus, they are transported from one place to another.

Wandering Christ’s Thorn

Among the thorny plants in the Arabian desert is the Christ’s thorn. The Arabs divide Christ’s thorn into two types, the wandering Christ’s thorn and the coastal Christ's thorn. As for the wandering Christ’s thorn, it is the wild Christ’s thorn that grows in the foothills and mountains far from water and is from the thorny tree family, so it is named for its wandering habit. Its thorns are like iron and its fruits of no benefit. As for the coastal Christ's thorn, it is the ancient, tall tree with a stem and without thorns. It grows on both shores of rivers, so it was attributed to the coast in the sense of the shore. The thornless Christ’s thorn is a type of Christ’s thorn without thorns.

The Christ's thorn is one of the trees used for shade in the desert, and people benefit from its fruits, which are called Nabaq. Islam forbids cutting down the Christ's thorn, and other trees that are in the desert or the wilderness, so that passers-by and animals can shelter under them. In the past, the Arabs used to fortify their homes and reinforce their fortresses with Christ's thorn, as it was used to make doors.

Ais trees

The Arabs say: "The Ais tree is the tree whose branches shrivel", as do those of *Vachellia flava*, banana, acacia, sial, Christ's thorn, umbrella thorn, and *Lycium shawii*.

Lycium shawii and thistle have short stems and smaller leaves. The tree stiffens, while its stem does not grow large but bends in on itself densely. Camels eat its thorns, eating only the branches that are fresh or close to them.

Umbrella thorn is of the thistle tree family. The Arabs in the desert benefited from umbrella thorn. They even say that there is nothing among the thistle trees of finer wood than the umbrella thorn. It is transported to their villages, where they use it for covering the houses.

Vachellia flava is another tree with thorns. It does not provide wood, even if it grows big. It is short, and has long, sharp thorns, tanned with its leaves and peel. Its leaves are called "Al Qard".