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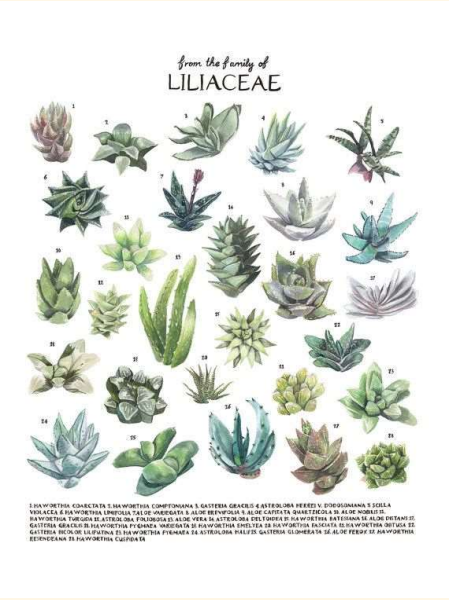
Cacti



Mammillaria

Melocactus

Opuntia

Mammillaria

General

Mammillaria is one of the largest genera in the cactus family (Cactaceae), with currently 200 known species and varieties recognized.[2] Most of the mammillaria are native to Mexico, but some come from the southwest United States, the Caribbean, Colombia, Venezuela, Guatemala and Honduras.[3] The common name "pincushion cactus" refers to this and the closely related genus Escobaria.

The first species was described by Carl Linnaeus as Cactus mammillaris in 1753, deriving its name from Latin mammilla, "nipple", referring to the tubercles that are among the distinctive features of the genus. Numerous species are commonly known as globe cactus, nipple cactus, birthday cake cactus, fishhook cactus or pincushion cactus though such terms may also be used for related taxa, particularly Escobaria.

Description

The distinctive feature of the genus is the possession of an areole split into two clearly separated parts, one occurring at the apex of the tubercle, the other at its base. The apex part is spine bearing, and the base part is always spineless, but usually bears some bristles or wool. The base part of the areole bears the flowers and fruits, and is a branching point. The apex part of the areole does not carry flowers, but in certain conditions can function as a branching point as well.

The plants are usually small, globose to elongated, the stems from 1 to 20 centimetres (1⁄2 to 7+3⁄4 inches) in diameter and from 1 to 40 cm (1⁄2 to 15+3⁄4 in) tall, clearly tuberculate, solitary to clumping forming mounds of up to 100 heads and with radial symmetry. Tubercles can be conical, cylindrical, pyramidal or round. The roots are fibrous, fleshy or tuberous. The flowers are funnel-shaped and range from 7 to 40 millimetres (1⁄4 to 1+1⁄2 in) and more in length and in diameter, from white and greenish to yellow, pink and red in colour, often with a darker mid-stripe; the reddish hues are due to betalain pigments as usual for Caryophyllales. The fruit is berry-like, club-shaped or elongated, usually red but sometimes white, magenta, yellow or green. Some species have the fruit embedded into the plant body. The seeds are black or brown, ranging from 1 to 3 mm (1⁄16 to 1⁄8 in) in size.

Taxonomy

The genus Mammillaria in the family Cactaceae was proposed by Adrian Hardy Haworth in 1812.[1] Initial spellings varied by authors but Mammillaria is now recognized as the accepted spelling. The first species in the genus was described by Carl Linnaeus in 1753 as Cactus mammillaris. The name Cactus became so confused that the 1905 Vienna botanical congress rejected Cactus as a genus name,[4] and conserved Mammillaria.[1]

Mammillaria is a large and diverse genus with many species often exhibiting variations due to the nature of terrain, weather, soil and other ecological factors. As a result, subdivisions within the species has been rather inconsistent over time. Initially, some investigators were more inclined to consider each variation as a unique species, although as time went on, creating confusion and long synonymy-lists for some of the species.[5] Over time, new investigators began grouping closely related forms under the same name to attempt to more accurately define the species.

Several systems for classification began to emerge. The first of note, created by Schumann and modified by Berger, divided the species into ten named groups. However, the criteria for these divisions was somewhat indefinite and flexible.[5] In the early 1923, cactologists Nathaniel Lord Britton and Joseph Nelson Rose developed the Britton & Rose system which arranged the classification characteristics in a system of keys with tangible separation factors, resulting in a much more workable system of identification.[5]

Later classification was performed by the cactus specialists Hunt, Reppenhagen and Luthy[citation needed], with much work focusing on researching the meanings and value of the original plant descriptions, synchronizing them with modern taxonomic requirements and studying the morphology of plants and seeds, as well as ecological aspects of the genus. These works helped to expand the understanding of Mammillaria taxa.

Currently the classification of Mammillaria is in a state where few newly discovered species are likely, though some new species may yet be found when the chaos of names created earlier by commercial plant collectors is sorted out. Many names that were introduced for plants barely differentiated by a shade of flower colour or variation in spination were eliminated in attempt to make the use of names consistent with the rest of the botanical world. The number of taxa, which at one time numbered above 500, is now below 200. Some genera (Dolichothele, Mammillopsis, Krainzia and others) have been merged back into Mammillaria, and others like Coryphantha, Escobaria and Mammilloydia were confirmed as separate.

Intense studies of DNA of the genus are being conducted, with preliminary results published for over a hundred taxa, and this promising approach might soon end the arguments. Based on DNA research results, the genus does not seem to be monophyletic and is likely to be split into two large genera, one of them possibly including certain species of other closely related genera like Coryphantha, Ortegocactus and Neolloydia.



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Melocactus

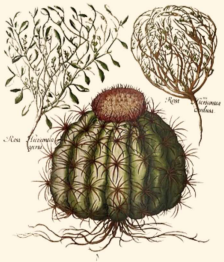
General

Melocactus (melon cactus), also known as the Turk's cap cactus, is a genus of cactus with about 30–40 species. They are native to the Caribbean, western Mexico through Central America to northern South America, with some species along the Andes down to southern Peru, and a concentration of species in northeastern Brazil.[1]

The first species was named by Carl Linnaeus in 1753, as Cactus Melocactus. When the genus was separated from Cactus, the pre-Linnaean name Melocactus was used. Acting on the principle of priority, in 1922 Nathaniel Britton and Joseph Rose resurrected Linnaeus' Cactus. However, the 1905 Vienna botanical congress had already rejected the name Cactus, so this name was not available, and Melocactus Link & Otto is the correct genus name.[1]

Mature plants are easily recognizable by their cephalium, a wool- and bristle-coated structure at the apex of the plant, containing a mass of areoles from which the small flowers grow.[1] The red, wool-coated cephalium, said to resemble the fez worn by Turkish men during the late Ottoman Empire, gives the plant one of its common names, Turk's cap cactus. It gives its name to the Turks Islands, part of the Turks and Caicos Islands.[2][3]

The fruits of Melocactus are pink and resemble the shape of pepper fruits. The fruits of this genus are edible, and in the wild they are frequently dispersed by lizards and birds.[4]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Opuntia

General

Opuntia, commonly called prickly pear or pear cactus, is a genus of flowering plants in the cactus family Cactaceae.[1] Prickly pears are also known as tuna (fruit), sabra, nopal (paddle, plural nopales) from the Nahuatl word nōpalli for the pads, or nostle, from the Nahuatl word nōchtli for the fruit; or paddle cactus. The genus is named for the Ancient Greek city of Opus, where, according to Theophrastus, an edible plant grew and could be propagated by rooting its leaves.[2] The most common culinary species is the Indian fig opuntia (O. ficus-indica).

Description

O. ficus-indica is a large, trunk-forming, segmented cactus that may grow to 5–7 metres (16–23 feet) with a crown of over 3 m (10 ft) in diameter and a trunk diameter of 1 m (1 yard).[1] Cladodes (large pads) are green to blue-green, bearing few spines up to 2.5 centimetres (1 inch) or may be spineless.[1] Prickly pears typically grow with flat, rounded cladodes (also called platyclades) containing large, smooth, fixed spines and small, hairlike prickles called glochids that readily adhere to skin or hair, then detach from the plant. The flowers are typically large, axillary, solitary, bisexual, and epiperigynous, with a perianth consisting of distinct, spirally arranged tepals and a hypanthium. The stamens are numerous and in spiral or whorled clusters, and the gynoecium has numerous inferior ovaries per carpel. Placentation is parietal, and the fruit is a berry with arillate seeds. Prickly pear species can vary greatly in habit; most are shrubs, but some, such as Opuntia galapageia of the Galápagos, are trees.

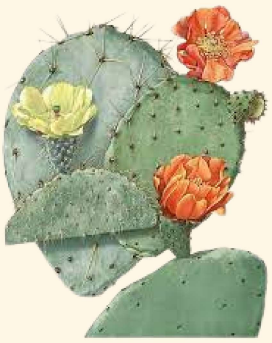
Chemistry

Opuntia contains a range of phytochemicals in variable quantities, such as polyphenols, dietary minerals and betalains.[3][4] Identified compounds under basic research include gallic acid, vanillic acid and catechins, as examples.[3] The Sicilian prickly pear contains betalain, betanin, and indicaxanthin, with highest levels in their fruits.[4]

Taxonomy

When Carl Linnaeus published Species Plantarum in 1753 – the starting point for modern botanical nomenclature – he placed all the species of cactus known to him in one genus, Cactus. In 1754, the Scottish botanist Philip Miller divided them into several genera, including Opuntia. He distinguished the genus largely on the form of its flowers and fruits.[5]

Considerable variation of taxonomy occurs within Opuntia species, resulting in names being created for variants or subtypes within a species, and use of DNA sequencing to define and isolate various species.[1]



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