

# Biology unit 5 db



**ASSIGN  
BUSTER**

## The Pitcher Plant: A Carnivorous Angiosperm with Modified Leaves Section

Number of The Pitcher Plant The *Sarracenia purpurea*, commonly known as Pitcher Plant, is an angiosperm with modified leaf. It is a perennial carnivorous herb.

The evergreen leaves of the pitcher plant are modified into the shape of pitchers, and arranged in a rosette formation. The edges of the leaf are curled and fused to form the curved and decumbent pitchers which can be up to 17" long, widening prominently towards the mouth. Each pitcher has a vertically positioned hood at the mouth. The pitcher is usually partially filled with rain water. Leaf or pitcher colour usually ranges from bright yellow-green to dark purple with strong red venation. The leaves or pitchers grow each year from stems arising from the rhizomes, and remains evergreen unless overtly exposed. The leaves grow from a basal rosette, and a ' keel' provided the required structural reinforcement to each pitcher so the the opening is always upright.

Foraging, flying or crawling insects such as flies are attracted to the cavity formed by the cupped leaf, often by visual lures such as anthocyanin pigments, and nectar bribes. The sides of the pitcher are slippery and may be grooved in such a way so as to ensure that the insects cannot climb out. The small bodies of liquid contained within the pitcher traps are called phytotelmata. They drown the insect, and the body of it is gradually dissolved. This may occur by bacterial action (the bacteria being washed into the pitcher by rainfall) or by enzymes secreted by the plant itself.

Furthermore, some pitcher plants contain mutualistic insect larvae, which feed on trapped prey, and whose excreta the plant absorbs (Wikipedia).

During digestion, trapped prey are converted into a solution of amino acids,

peptides, phosphates, ammonium and urea. The plant obtains its mineral nutrition, particularly nitrogen and phosphorus, from this solution.

Common habitats of the pitcher plant are bogs, savannas and flat woods.

The wettest parts of the bogs are favored, often restricting the species to the edge of the bogs. Pitcher plants form dense floating mats on the water on the edge of bog ponds or lakes and acidic streams. The carnivorous form of nutrition of the plant is an adaptation to the poor mineral content or acidic nature of the soil in which it grows. The soil in which it grows is usually deficient in trace elements such as molybdenum. Such soils are usually highly acidic and unsuitable for many other plants.

The modified leaves of the pitcher plant help it to catch preys that comprise not only insects but also isopods, mites, spiders and the occasional frogs.

What the plant does not get from the soil it grows in, it obtains from the living prey it catches with the help of its pitcher leaves. The pitcher plant is a good example of an adaptation process that results in the modification of a plant part – the leaf in this case.

The pitcher plant bears solitary rose pink to dark red flowers on leafless stems rising out of rhizome. The fruit is a capsule with laterally winged seeds. The root system of the pitcher plant, as in other carnivorous plants, is weak and poorly developed. Their function is almost entirely supportive. The acidic content of the soil they grow in does not affect the roots.

The families Nepenthaceae and Sarraceniaceae are the best-known and most specious groups of pitcher plants. The Nepenthaceae bears the pitchers at the end of the tendrils that extend from the midriff of an otherwise normal leaf. The plants themselves are often climbers that use their tendrils. The Sarraceniaceae are ground-dwelling herbs whose pitchers arise from a

horizontal rhizome (Wikipedia).

### References

1. Wikipedia, 2007, Pitcher Plant, Wikipedia, the free encyclopaedia [Online] Available. [http://en.wikipedia.org/wiki/Pitcher\\_plant](http://en.wikipedia.org/wiki/Pitcher_plant) [14 September 2007]