

Literature Review

Cipollini, D.F., et. al. 1994. Total carbohydrates in nectar of *Sarracenia purpurea* L. (Northern pitcher plant). *Am. Midl. Nat.* 131:374-377.

The authors used a novel paper wick method to collect nectar from three pitcher sites in both young and older pitchers, the sites being the hood, rolled margin of the mouth and the ala. The method consisted of using 3 x 10 mm points of filter paper clipped to the plants by plastic covered clips, Initially, careful examination was done to rule out damage to plant hairs which would have contaminated the collections. The strips were left in place until saturated, extracted with water and analyzed chemically using an acid anthrone method. Results indicated that the rolled mouths of younger pitchers consistently had high levels of carbohydrates, hoods inconsistently far less, and the ala none. Carbohydrates were markedly decreased to absent in older pitcher nectar.

Higashi, S., et. al. 1993. Analysis of feeding mechanism in a pitcher of *Nepenthes hybrida*. *J. Plant Res.* 106:47-54.

The authors concluded that in this particular taxon, digestion was accomplished by both bacterial enzymes and native proteases. With the pitcher fluid initially at an alkaline or near neutral pH, feeding resulted in bacterial enzyme activity at the neutral or higher pH, in turn releasing ammonium ions from the digesting prey which stimulated lining cells in the pitcher to produce hydrogen ions, thereby lowering the pH. At this lower pH, native plant proteases took over to complete digestion.

Turner, B. L. 1994. Two new gypsophilic species of *Pinguicula* (Lentibulariaceae) from Nuevo Leon, Mexico. *Phytologia* 76:69-72.

The new specks of Mexican pinguiculas roll on! These are gypsophilic, from southern Nuevo Leon and are closely related to *P. esseriana*. They are both delicate annuals. *P. jorgehintonii* has a more regular corolla than *P. esseriana* as well as shorter, glabrous pedicels, and shorter glabrous spurs. A drawing of this taxon is in the article.

P. hintoniorum is similar to above, but the flower is more strongly zygomorphic with a deep purple color, shorter tube and somewhat longer spur.

Wilson, P. 1994. The east-facing flowers of *Drosera tracyi*. *Am. Midl. Nat.* 131:366-369.

The author notes that the dowers of *D. tracyi* (*D. filiformis* var. *tracyi*) generally face east or toward the direction of the rising sun. They do not follow the sun during the day. The flowers open at 0800 and close around noon at the study site in the Florida panhandle in May. The author manipulated several flowers to face west (sunset) in the predawn hours before opening, then counted pollen grains in anthers and stigmas in flowers collected at noon to note pollen removal and deposition respectively. He concluded that the facing of the flower had no effect on anther pollen removal and stigma pollen deposition and that presumably pollinators were active in flowers facing either way so that the adaptation was no longer required. This reviewer has one question: Considering that the flowers were collected to be analyzed at noon during or after closing, how does the author account for the usual habit of North American droseras to self-pollinate, if not insect-pollinated earlier, at closure? He apparently did not observe for pollinators during the test morning, or at least enumerate them, so a possible insect pollinator benefit has not been ruled out.