Literature Review

Boesewinkel, F.D., Ovule and seed development in *Droseraceae*. Acta Bot. Neerl. 38(3): 295-312. 1989.

The differences in the seed coat of *Dionaea, Aldrovanda, Drosera* and *Drosophyllum* are mainly due to variations in the differentiation of the testa. After analysis, the author concludes that from just the point of view of seed anatomy, these four genera are correctly placed in the *Droseraceae*.

Caniato, R., R. Filippini and E. M. Cappelletti. Naphthoquinone contents of cultivated *Drosera* species *D. binata, D. binata var. dichotoma*, and *D. capensis*. Int. J. Crude Drug Res. 27(3): 129-136. 1989.

The Australian species of *D. binata* and *D. binata var dichotoma* are good natural sources of plumbagin, the only quinone occurring in these species. *D. capensis* is a good natural source of 7-methyljuglone, the only naphthoquinone occurring in all the plant organs.

Friday, L. E., Rapid turnover of traps in *Utricularia vulgaris* L. Oecologia (Berl) 80(2): 272-277. 1989.

In observing this species growing at Wicken Fen, England, a new group of leaves bearing many traps were produced at the rate of 1.4-2.8 groups a day from April to September. Survival was 50 days but trapping efficiency of bladders was greatest between 1-6 days of age and declined rapidly afterwards. A few traps 19 days old still could capture prey but overall the lifespan of the traps was related to size and position on the leaves.

Fromm-Trinta, E. *Genlisea lobata* Fromm-Trinta: A new species for the genus *Genlisea* St.-Hil. Section *Tayloria (Lentibulariaceae)*.

This new species of *Genlisea* is allied to *G. violacea* St.-Hil. from which it differs by the lobes of the corolla and other characters.

Hodick, D. & A. Sievers. On the mechanism of trap closure of venus flytrap (*Dionaea muscipula* Ellis). Planta (Berl) 179(1): 32-42. 1989.

Various experiments have explained the rapid closure of *Dionaea* traps by either a loss of turgor pressure of the upper epidermis, which should become flexible, or a sudden acid-induced wall loosening of the motor cells. These authors object to both explanations. On the first explanation, after trap closure, experimental results indicate that upper epidermal cells retain a considerable cell sap osmolality, which equals the value found in the mesophyll cells. On the second explanation, a sudden cell-wall acidification causing movement is improbable since an acidification of the apoplast from pH 6 to pH 4 reduces the action-potential amplitudes by 33% which is in

contrast to the measureed amplitude from the mesophyll and lower epidermis. If traps are incised several times from margin to midrib, a buffer of pH 6 added here does not stop trap movement. Even an alkaline buffer of pH 9 does not prevent extension of the mesophyll and movement in the traps. The authors theorize that mesophyll cells are kept compressed in the open trap developing a tissue tension. Lanthanium ions can paralyze the traps preventing mesophyll cell extension. By conducting stretching experiments on leaf strips with and without inhibitor, the authors conclude that cell walls of the upper epidermis and an adjacent mesophyll layer are the only cell walls with preferential microfibril orientation in the direction of the applied stress.

Kelly, M. S., Distribution and biomass of aquatic macrophytes in an abandoned nuclear cooling reservoir. Aquat. Bot. 35(2): 133-152. 1989.

An abandoned reactor cooling reservoir on the Savannah River Plant, S. Carolina was studied after 24 years. It was colonized by four floating species of plants with 32% of the biomass being *Utricularia floridiana* Nash and had the greatest standing crop in May. The low conductivity and slightly acidic water chemistry are important factors in the establishment of macrophyte species.

Lancelle, S. A. & P. K. Hepler. Immunogold labeling of action on sections of freeze-substituted plant cells. Protoplasma 150(1): 72-74. 1989.

The authors found the muscle protein actin in the pollen tubes of *Nicotiana* and the tentacles of *Drosera* species using monoclonal antibody specific for this protein.

Richter, U. Scanning electron microscopic observations on the bladders of *Utricularia reniformis* and *U. sandersonii*. Beitr. Biol. Pflanz 64(2): 167-184. 1989.

The distribution and grouping of different hairs showed differences between the velum of *U. reniformis* and the pavement epithelium of *U. sandersonii*.

Sivas, R. G. and J. F. Brown. Yeasts associated with fluid in pitchers of *Nepenthes*. Mycol. Res. 93(1): 96-100. 1989.

Nepenthes pitcher contents were studied in Australian cultivated plants and West Malaysian species. The dominant yeast type was *Cryptococcus albidus* with eight other species present in more or less abundance.