

Table 1.1: Subcellular compartments in a mesophyll cell* and some of their functions

| | Percent of the total cell volume | Functions (incomplete) |
|------------------------|----------------------------------|---|
| Vacuole | 79 | Maintenance of cell turgor, store and waste depository |
| Chloroplasts | 16 | Photosynthesis, synthesis of starch and lipids |
| Cytosol | 3 | General metabolic compartment, synthesis of sucrose |
| Mitochondria | 0.5 | Cell respiration |
| Nucleus | 0.3 | Contains the genome of the cell. Reaction site of replication and |
| Peroxisomes | | Reaction site for processes in which toxic transcription intermediates are formed |
| Endoplasmic Reticulum | | Storage of Ca ⁺⁺ ions, participation in the export of proteins from the cell and in the transport of proteins into the vacuole |
| Oil bodies (Oleosomes) | | Storage of triacylglycerols |
| Golgi bodies | | Processing and sorting of proteins destined for export from the cells or transport into the vacuole |

* Mesophyll cells of spinach; data by Winter, Robinson, and Heldt, 1994.