

Reproductive growth

11

OM11.1 FRUIT DIVERSITY

Fruits exist in a vast range of shapes and sizes (Figure OM11.1-1), from those of the tiny aquatic plant *Wolffia angusta*, which are smaller than a grain of table salt, to the giant pumpkin (*Cucurbita maxima*), which can weigh well over 500 kg. Fruits usually develop from the ovary after flowering. They include structures that are not referred to

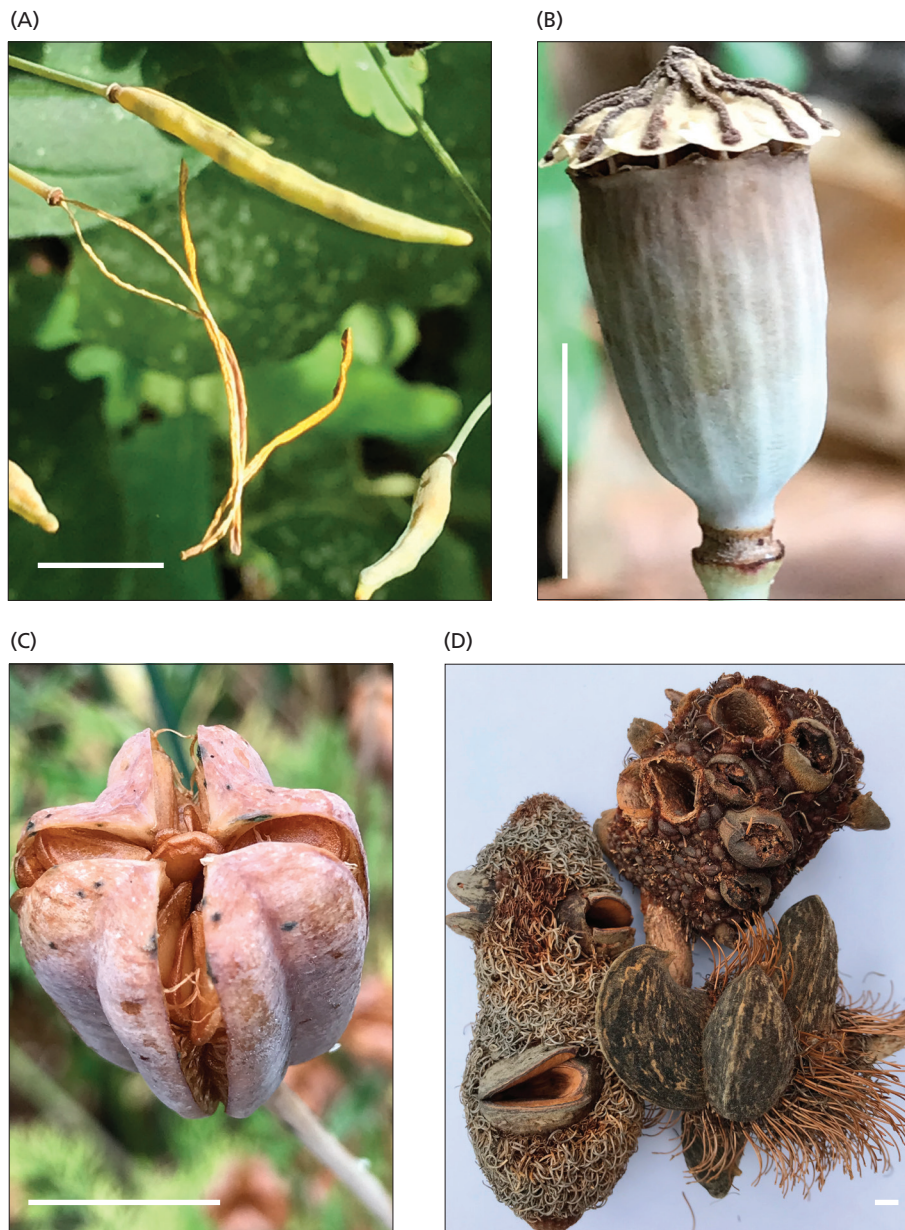


Figure OM11.1-1 Variation in fruit morphology across angiosperms. Diversity of fruit forms is illustrated with a selection of angiosperm fruits that split open on drying, dispersing the seeds. (A) A mature fruit of *Chelidonium majus* (greater celandine) is shown at the top of the photo, while below it can be seen that drying causes the two valves that comprise the capsule to split apart lengthways, shedding the seeds. (B) Fruit of the poppy *Papaver dubium*. As the capsule dries and shrinks, apertures appear immediately below the cap. Seeds are released when the capsule is shaken. (C) Mature fruit of *Fritillaria meleagris* (snake's-head fritillary; monocot). The seed head splits open to release the light, papery seeds. (D) Fruits of three species of *Banksia*, a genus of Australian shrubs and trees. The fruits are woody, pod-like structures called follicles that are embedded in the woody remains of the inflorescence. Follicles of some species open to release the seeds when completely dry, but those of other species open only following exposure to high temperatures in bush fires.

as fruit in common speech, such as cereal grains and kernels, nuts, fruits of cucurbits such as zucchini and pumpkin, and the pods of legumes. Some fruits develop from the **receptacle** – the thickened upper part of the stem (pedicel) subtending the flower – rather than the ovary. Examples are apples, pears, loquats (*Eriobotrya japonica*), and strawberries. Apples, pears, and loquats are so-called pome fruits in which the edible fleshy part forms from the receptacle and encases the remains of the ovary (the “core” of an apple) containing the seeds. The fleshy part of a strawberry is also derived from the receptacle: the “seeds” on its surface are composed of the seed itself surrounded by the dry remains of the ovary. Many grass “seeds” are caryopses, in which the protective outer layer is formed by fusion of outer, maternal layers (the integuments) with the wall of the ovary (see Section 1.4).

During crop domestication, humankind selected species for cultivation that have high yields of fruits with desirable characteristics. Some cultivated fruits provide tasty, juicy, and nutritious foods whereas others are important for their storage products such as oil and starch. The impact of domestication on the fruits of cultivated plants is described in Chapter 17.