

*For example, the black locust has a pair of *spines* at the base of each petiole of most leaves, these are parts of the leaf (*stipules*). The *prickles* of roses originate from the *epidermis*, are neither thorns nor spines.



prickles



spines

* **Climbing** plants have stems modified in different ways that adapt them for their growth habit.

* Some stems, called *rambles*, simply rest on the tops of other plants, but many produce **tendrils**.



rambles



tendrils

*These are specialized stems in **grape** but are modified leaf or leaf parts in plants like **peas**.



*In **English ivy**, the stem climb with the aid of **adventitious roots** that arise along the sides of the stem and become embedded in the bark or other support material over which the plant is growing.



Fig. 2.15 (A) tendrils, (B) garden pea (*Pisum sativum*) has two modified stem tendrils. (C) *Stemata cilicium angustatum*. The petiole acts as a tendril. (D) *Ipomoea pes-caprae*. The tendrils of *Ipomoea* have been considered as leaf stipules, but are structurally parts of the petiole. They split off from under the base of the petiole, not on either side, only in the growth of the primary region of the leaf.

