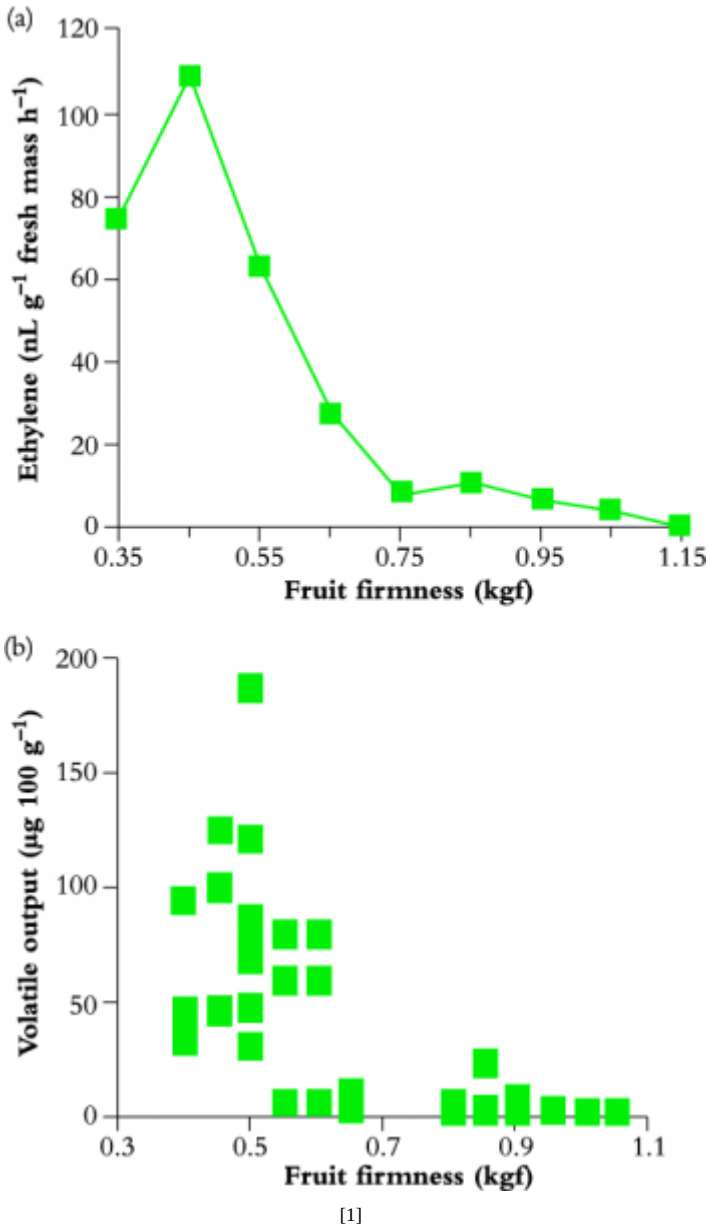
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11.5.1?Ripening indicators



[1]

Figure 11.12 Ethylene production, total volatiles (including flavour compounds) and tissue firmness are interrelated in ripening kiwifruit. Production of ethylene (a) is highest from soft fruit, with firmness of around 0.45 kgf. Fruit is considered

soft and ripe enough to eat once firmness falls below 0.7 kgf. As fruit soften, production of specific aroma compunds (volatiles in (b)) rises dramatically as fruit pass through their climacteric. Ethylene production and aroma production are biochemically linked.

(Based on Paterson *et al.* 1991)

Several major changes can take place as fruits ripen. Not all occur in every type of fruit, but taken collectively they charac-terise ripening processes. They include:

1. a rise in respiration rate;

2. production of ethylene;

3. flesh softening;

4. appearance of colour;

5. formation of volatiles with associated development of flavour (Figure 11.12).

One prime objective of a postharvest physiologist is to ensure these changes occur immediately prior to fruit purchase or in the hands of a consumer. Sometimes all events take place at about the same time, denoting the time of optimal eating quality. However, the linkage is not a rigid one. Throughout ripening, respiration remains tightly coupled (Section 2.4) so that one consequence of increased respiration is an increase in available energy as ATP. Biological energy is used for many biosynthetic events, and more ATP is consumed during ripening to produce the many attractive characteristics of a ripe fruit.

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