

## **GAS ATTACK**

---

A few winters ago, while I was visiting my parents, my mother had bloomed *Cymbidium* Ivy Fung 'Demke' (a "miniature"--only three or four feet across) and had brought it into the living room to enjoy. It had one spike in full bloom and another in early bud. The weather was cold and we made a fire in the wood stove. We left the stove doors open to see the cheerful flames, even if a little of the smoke did get out into the room. By the next morning, all the flowers on the cymbidium had wilted and fallen off. The flowers had only been out for a week or two and should have lasted for months. The other spike was unscathed and later bloomed OK. What happened?

Maybe it was heat or dryness. But most likely, the culprit was ethylene gas from the wood smoke.

Ethylene is a gas produced by incomplete combustion and also produced by living things, such as ripening fruit. It seems to be a chemical messenger in the vegetable kingdom and can initiate flowering or fruiting. In orchids, unfortunately, it causes sepal wilt and bud drop, and, in general, makes flowers age prematurely. It has no effect on leafy growth.

Sepal wilt is a condition seen in cattleyas and some other genera where the sepals wilt prematurely, though the petals and lip continue in good condition. It can be caused by incredibly small concentrations of ethylene: a few parts per billion in the air. Larger amounts can cause bud drop in many different kinds of orchids.

Coal miners used to bring canaries into the mines for early warning of poisonous gases. The canaries would die before the gases reached toxic levels for humans. It would be nice if we had a plant equivalent to detect ethylene

among our orchids, but, unfortunately, the "canaries" are the cattleyas themselves. Nothing else is so sensitive to such small quantities of the gas.

Ironically, in bromeliads, ethylene is beneficial --it triggers blooming. Books on bromeliads always recommend enclosing them in a plastic bag along with a ripe apple to force blooming. But be aware that not just apples give off ethylene. Almost all ripening fruits and vegetables do.

How can you avoid exposing your orchids to ethylene? In the greenhouse, heaters should be vented to the outside, of course. Don't use unvented kerosene heaters except in an emergency if your main heater fails, and then expect ethylene damage (which is better than losing the plants, of course). Don't grow orchids in your garage (car exhaust contains ethylene).

Inside the house, try to keep budding and flowering orchids away from your gas stove, and from ripening fruits and vegetables. It's easy to forget and put a tomato on the kitchen window sill to ripen, when you also grow orchids on that window sill. However, don't panic and give up eating fruits and vegetables. Damage from them is unlikely as long as your house has some ventilation. When you use your fireplace, avoid keeping orchids in the same room. Ditto for wood stoves if used with the stove door open.

Ethylene is really a very minor orchid problem, and not one to lose sleep over. Unless you're in the predicament of the grower who lived next to a busy superhighway and complained that ethylene from the exhaust was damaging his orchids. In that case, you have two choices. Either move away, or take up growing bromeliads.

**Larry Kuekes**

*from the Connecticut Orchid Society Newsletter  
of November 1991; Roger Vars, editor*

10/92