A TASTE FOR NEW BIOLOGY LESSONS?

For decades, biology teachers have had students construct pedigrees with the "taster" gene. All it required was a supply of small strips of paper coated with phenothiocarbamide (PTC or 1-phenyl-2-thiorea, $C_6N_5NHCSNH_2$). It was quick, inexpensive, and seemed to work. But it was also inaccurate, dangerous, and downright bad science. It's time to properly dispose of the PTC paper and develop a taste for new experiences and new ideas in genetics.

PTC is one of a group of chemicals that some people seem to be able to taste more than others. Most textbooks have called the ability to taste "Mendelian" since nontasters seem to have only nontasting offspring, but it's really incomplete dominance. Tallying "tasters" leads to serious misconceptions since it confuses the genetics of PTC with its population biology. Researchers now understand that the "taster" trait isn't as simple a biochemical process as the textbooks suggest; it's a function of anatomy. Surrounding each taste bud are receptors for pain (e.g., for jalepeños) and touch sensors for fats, which are agonistic to taste receptors.. There are no special areas of the tongue for sweet, sour, salty, or bitter.

After all this misinformation, if you still have a taste for using PTC strips, here's something to spoil your appetite. PTC is sold as a rat poison. Its MSDS says it's "fatal if swallowed ... a respiratory tract irritant." If you are thinking, "That would take a lot of PTC," think again. The LD_{50} is 3.4 mg/kg. A single strip has about 0.3 mg, so a small tube of 50 strips can kill a newborn infant or a family pet. And remember, that's an average. A stolen supply of PTC strips could cause serious harm. PTC does not belong in a classroom, and especially not at a family reunion to create a pedigree. (Find out more at *physchem.ox.ac.uk/MSDS/PH/1-phenyl-2-thiourea.html*.) Substitute an herb like cilantro, or instead trace what members of your family like broccoli.