



## A darker shade of red

*Cochineal and carmine are two colours whose properties are increasingly being brought to light*

While the British Beatles invasion came from Europe to North America in the 1960s, the first big beetle invasion went from the Americas to Europe in the 16th century following the Spanish conquest. Cortez and his Conquistadors went looking for gold and found it in a red dye called cochineal.

At one time worth even more than gold itself, the Spanish held the secrets of cochineal and monopolized its global trade. The dye was so valuable to the Spanish that there were even laws calling on the death penalty for foreigners attempting to smuggle it. While the Aztecs and Mayans used this amazing red dye “cochineal” for painting and dying fabrics, its original uses were, somewhere in history, lost in translation. Instead, it ended up being used in food.

Cochineal is derived from a “bug,” a female beetle that loves cacti. Even to this day the bugs are harvested by hand, dried and further processed. Sound yummy yet? Cochineal contains about 90 per cent assorted bug parts and 10 per cent carminic acid, which when precipitated onto an aluminum hydroxide substrate using aluminum or calcium cation becomes carmine (a calcium-aluminum lake). The colour cochineal is actually an aqueous-alcoholic extract, meaning we’re spared some of the other bug parts.

Like its use in North America, the red dye was used around the ancient world. The Phoenicians made a dye from a beetle, kermes, not identical but analogous to the cochineal beetle. The dye was also used by the Hebrews to colour the curtains of their tabernacle. However, foods that are kosher or Halal should not contain cochineal colour. And, as a matter of interest, the term “carmine” comes from the Sanskrit word meaning “red dye.”

Today, cochineal extract and carmine are used in food products worldwide. The European Union designation for these two colours share the same number, E-120. To make matters more confusing there also is an E-124 “cochineal red.” The latter, however, is a synthetic azo colour not permitted in Canada or the U.S. Carmine should also not be confused with indigo carmine, which is recognized as indigotine in Canada and FD&C Blue 2 in the U.S. The point here is that one should not jump to conclusions in identifying colours.

Although there is a long and rich history behind cochineal, it only became popularly used as a food colour within the last century or so. Recently the focus on these colours has shifted as well. No longer the guarded “bug secret,” the spotlight is now on the relationship these colours have to adverse food reactions, including anaphylaxis. In fact, it has been known since about 1961 that these colours could invoke a severe allergic reaction, as they did at that time in a cosmetic product. There’s also an occupational concern relating to the inhalation of these colours and asthma.

While recent efforts to investigate and report severe allergic reactions have helped bring these issues to light, for the most part, these colours are safe. The problem instead lies with labelling practices. In Canada food colours don’t need to be identified by name and, with the exception of certain meat products, can instead be collectively identified in a list of ingredients simply as “colour.” Even in the U.S., where these would not be certifiable colours, they may be described in a list of ingredients as “artificial color,” as “color added,” or by some equally descriptive expression. However, as people with allergies know, the only way to avoid allergens is to know exactly where these allergens are.

As of Jan. 1, 2006 the U.S. implemented mandatory food allergen labelling for its priority allergens. While cochineal colours were not on this list, the U.S. FDA also proposed in January to amend its regulations to require that manufacturers declare these colours by name. In Canada we’re still waiting to make the basic amendments to better address allergen labelling. Cochineal colours are also not on the Canadian food allergen priority list, and neither are there any proposed regulations to do so. While manufacturers can be proactive and declare these colours by name anyway, it’s clearly something we need to get moving on.

There will likely be more attention on these colours in the near future. Even the *Wall Street Journal* recently picked up the story, albeit in black and white print.

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