

What makes me orange?

## **Achiote Seeds**

 $C_{24}^{}H_{28}^{}O_{4}^{}$ 



Seeds from the achiote berry contain an orange-red pigment that can be used as a food seasoning or coloring. Grinding the seeds produces a powder or paste which can be added to a wide variety of foods, including processed cheeses, dairy spreads, snack foods, and breakfast cereals.



## **Cochineal Insect**

 $C_{22} H_{20} O_{13}$ 



People collect cochineal insects off cactus plants, dry them, and crush them to make a dye called carmine or *carminic acid*. This dye has been a valuable trade product and is used to color fabrics, foods, and cosmetics, like lipstick.





What makes me pink?



What makes me purple?

## Chokeberry

 $C_{15}H_{11}O^{+}$ 

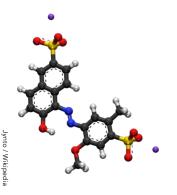


Chokeberry is a small shrub plant with deep red, almost purple, berries. The berries have a tart flavor, and are sometimes used on their own to make juice or jam. They are also used in large-scale production to add color to different foods and beverages, such as yogurt and ice cream.



## **Synthetic Dye**

 $C_{18}H_{14}N_2Na_2O_8S_2$ 



Allura Red AC is a bright synthetic dye. Food safety groups in North America and Europe have studied the dye extensively to address public concern, and it remains in wide use and wide acceptance. It is approved for use in cosmetics, drugs, and foods and is commonly found in soft drinks, children's medication, and cotton candy.

