

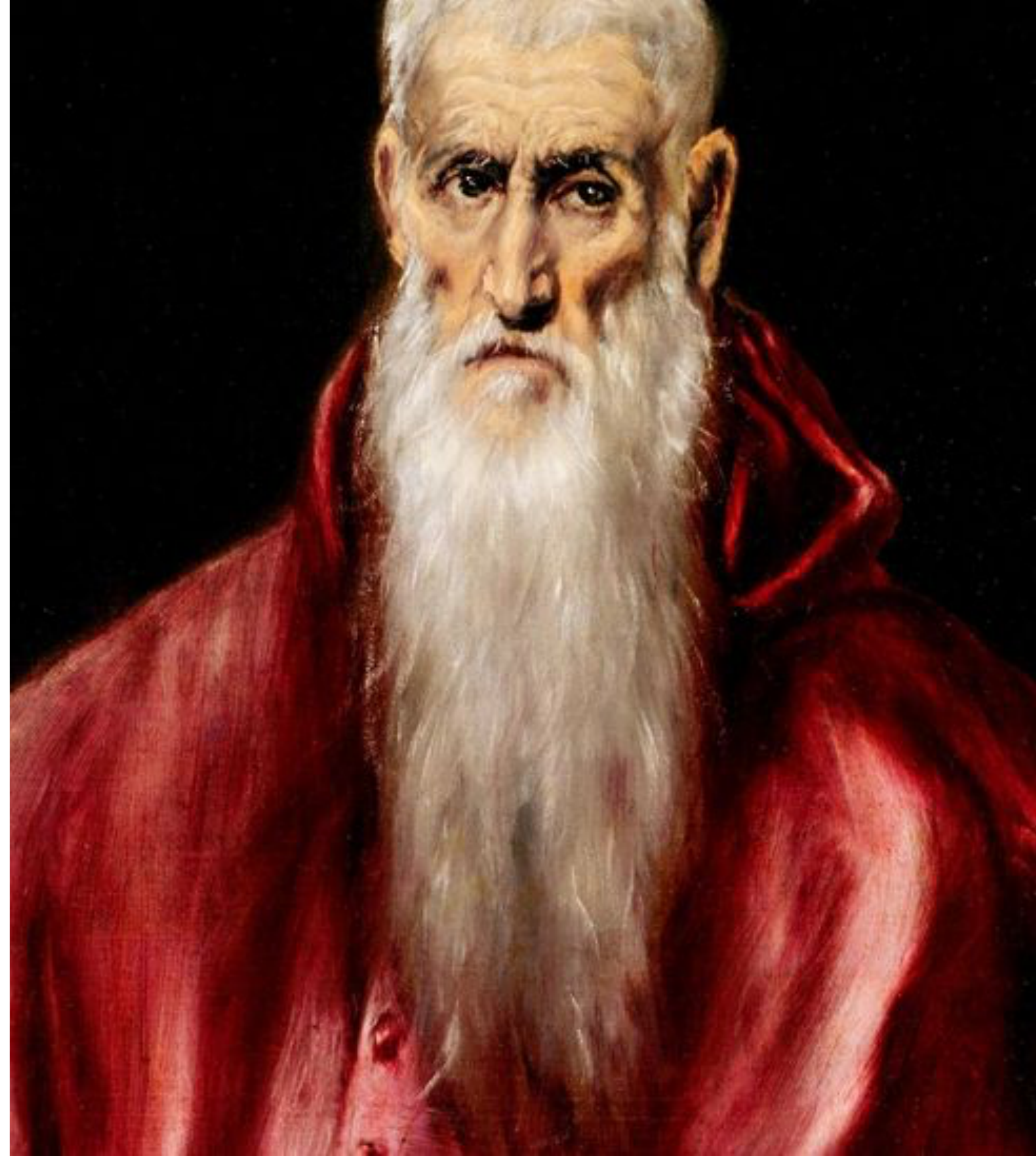
Bugs to Dye For

The Perfect **Red** from Cochineal Bugs

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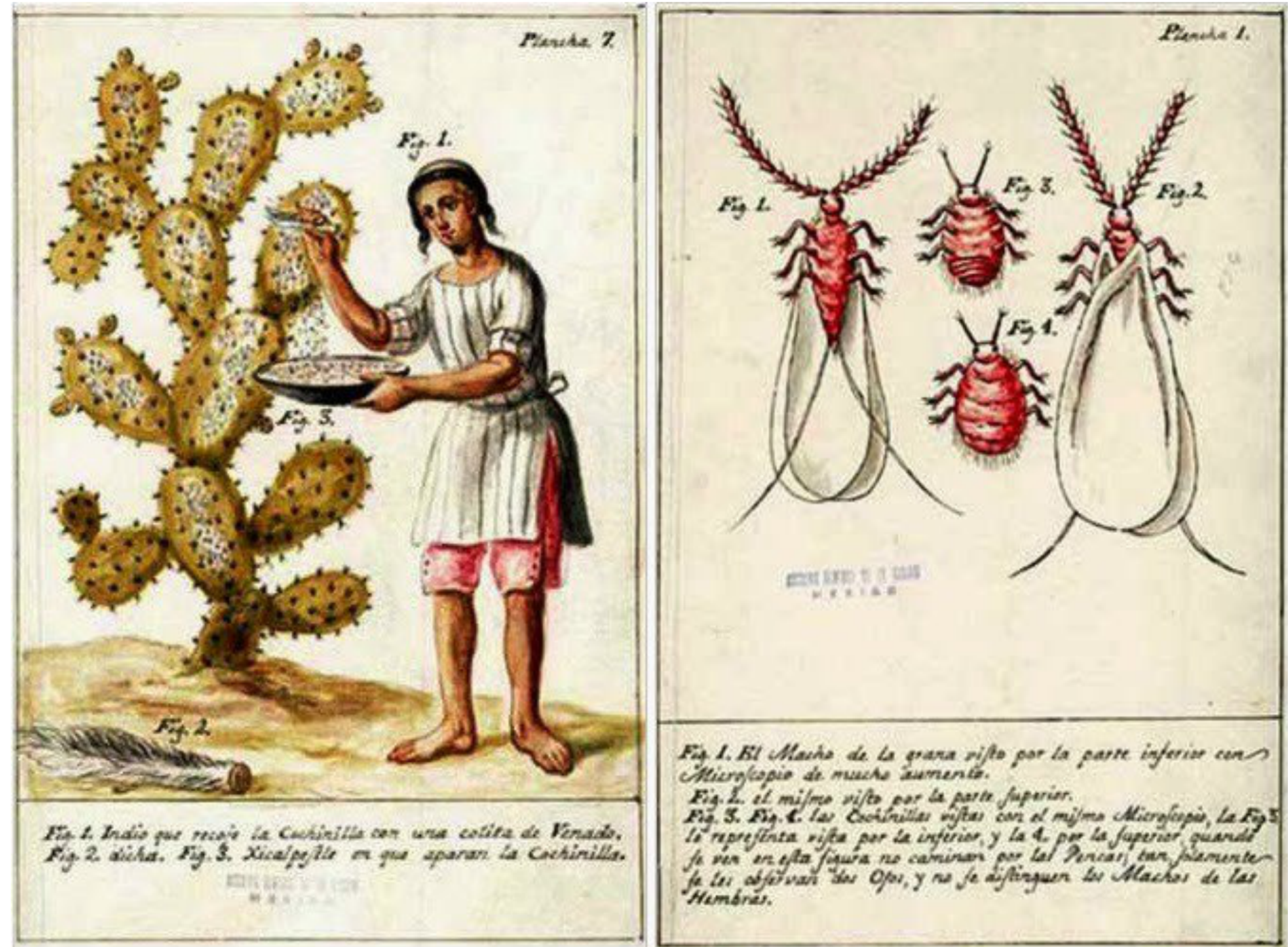
The Mystery of Red Dye

- Fabric dyers in Venice were very skilled in the Middle Ages
- Everyone wanted red
- But no one had figured out how to make red dye that would not fade
- Suddenly, Spain had the monopoly for a brilliant red dye



Secret of the Aztecs

- The Spanish learned about a color-stable red dye from Aztecs in Mexico
- The Aztecs harvested the cochineal bug from cactus
- The source of the beautiful red color remained a mystery for many years



The Dye

- The cochineal bug is dried and then crushed
- The bugs are harvested, dried, and crushed
- It takes 70,000 insects to make 1 pound of dye

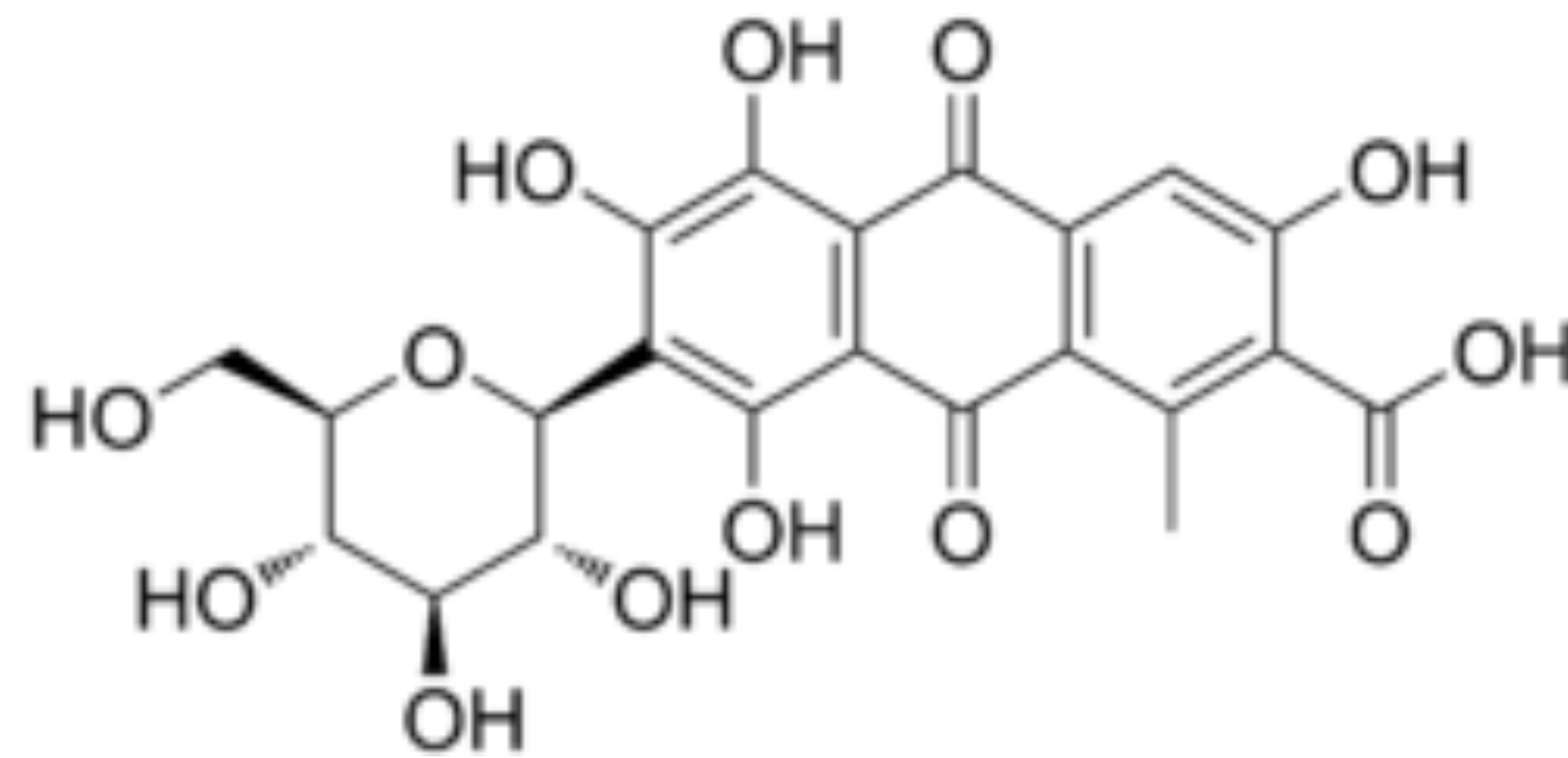


A Variety of Colors

- The dye from cochineal bugs can range from soft rose to scarlet to deep burgundy
- The dye is used on fabrics and food



Carminic Acid



Oxygen atoms are reactive and allow the dye to react with fabric

Adding an acid or base can change the color of the dye