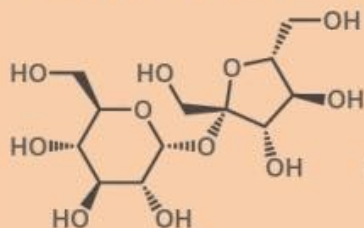


THE CHEMISTRY OF HONEY

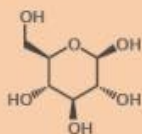
HOW DO BEES MAKE HONEY?



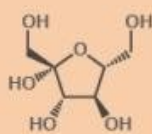
SUCROSE
primary sugar in
many nectars

When bees harvest nectar, it is stored in their honey stomachs, separate from their normal stomach. The nectar is mixed with enzymes which break down the larger sugars in the nectar, such as sucrose, into the smaller sugars glucose and fructose.

The forager bee then passes it on to a house bee, who regurgitates and re-drinks the nectar over a 20 minute period, breaking down the larger sugars further.



GLUCOSE

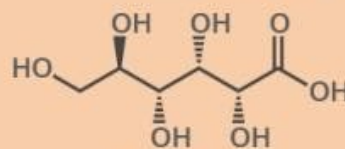


FRUCTOSE

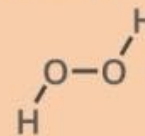
The nectar is deposited in the honeycomb, and the bees fan it to hasten water evaporation, until the water concentration falls to around 17%.



WHY DOESN'T HONEY GO OFF?



GLUCONIC ACID



HYDROGEN PEROXIDE

Honey has such a low water content, it draws water from its surrounding environment, meaning it can dehydrate bacteria, thus preventing spoilage.

Gluconic acid is the dominant acid in honey, produced by the action of bee secretions on glucose. It, and other acids, give honey a low pH of between 3 and 4; this, along with the fact it also contains small amounts of hydrogen peroxide, makes it too hostile for bacterial growth.

