

Why Does Pure Honey Last Longer?



Honey is a natural preservative, and due to its pure element, it will never go bad (Wasiu, 2015). Here are some features that make pure honey effective against microorganisms, allowing it to last for a long time.

High in sugar

- Consists of different types of sugars with fructose and glucose as the main contributors (Belay et al., 2016)
- A supersaturated sugar solution (Albaridi, 2019), consists of 85 – 95% of sugar (Silva et al., 2017)

- Pure honey is hydroscopic, which means that it can draw moisture out of the environment and dehydrate bacteria, and its high sugar content and low-level pH can also prevent the microbes from growing (Khadra et al., 2018)
- Cells become dehydrated and unable to grow and proliferate (Albaridi, 2019)

Low water content

- Water activity is a measure of the unbound water molecules in food. The less the unbound water, the harder it is for bacteria to grow in foods (Albaridi, 2019)
- The water activity (aw) of honey ranges from 0.562 and 0.62, which means it provides a very low water availability to support the growth of any microorganisms (Albaridi, 2019)

Acidity

- Most bacteria grow in a pH range between 6.5 and 7.5 (Albaridi, 2019)
- Honey has a pH value that ranges between 3.5 – 5.0 (FAO, n.d.), which enables it to control the microbial spoilage and product shelf life
- Contains high concentration of organic acids, particularly gluconic acid (Szweda, 2017)

Presence of compounds that suppress bacteria growth

- An enzyme called glucose oxidase is secreted by bee into the nectar, where it catalyses glucose into gluconic acid and hydrogen peroxide (H₂O₂) (Altman, 2017)
- Antibacterial properties of honey are largely depended on the accumulation of H₂O₂ (Bucekova et al., 2014), where H₂O₂ is used as a sterilizing agent during the honey's ripening process (Altman, 2017)
- Honey contains a variety of other compounds such as polyphenols, flavonoids, methylglyoxal, bee peptides and other antibacterial agents, which may also add to its antimicrobial qualities (Israili, 2014)

Darker Honey Colours

- Honey colour ranges from nearly colourless to dark brown
- The colour of honey is depending on its floral source with different mineral contents
- Light-coloured honey is milder in taste while dark-coloured honey is stronger
- Amino acid and mineral content is broader in darker honeys compared to lighter honeys (Szabó et al., 2016)
- It is reported that the darker colour of honey resembles the higher levels of polyphenols content and higher antioxidant activity that are beneficial to health (Khadra et al., 2018)

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