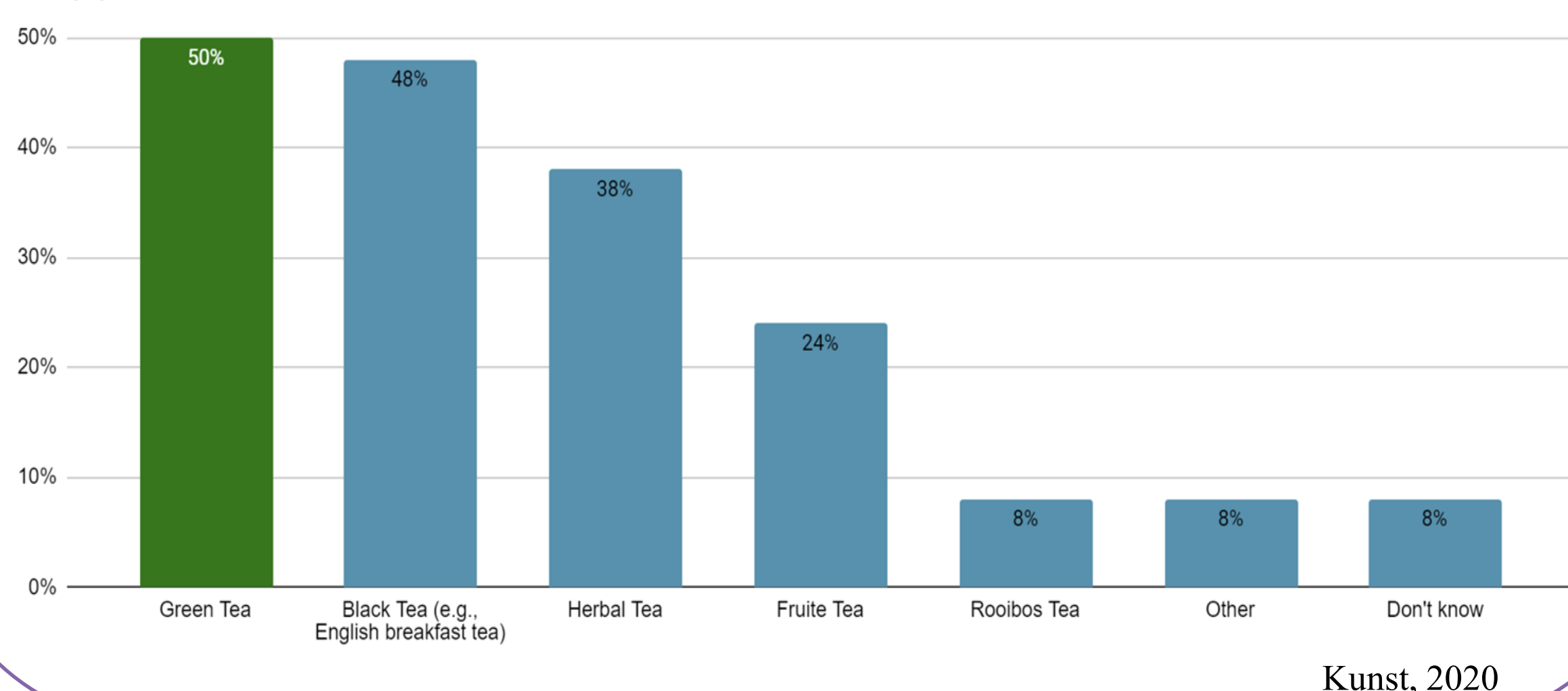


## Introduction

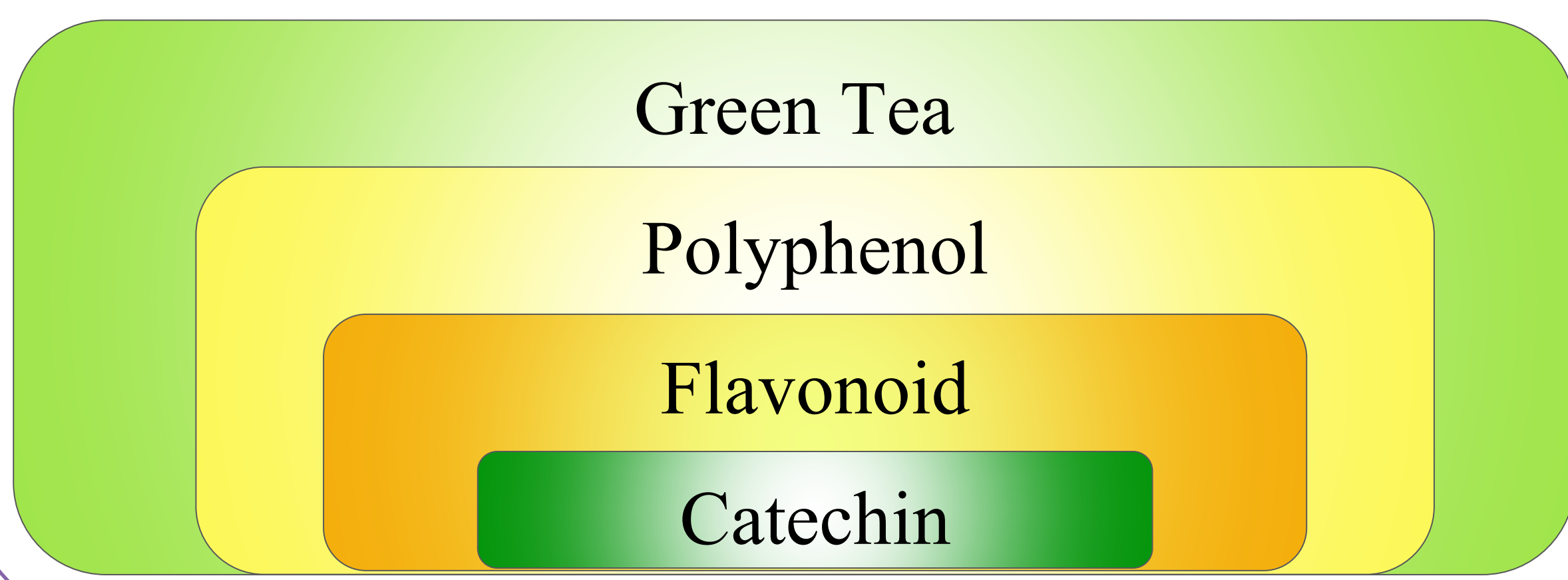
Green tea is one of the most popular beverages in the world, in part, due to its health benefits. Regarding oral health, evidence has shown green tea has aided in preventing gingival inflammation, caries, periodontal disease and halitosis, as well as having cancer prevention properties. Besides water, tea has become the second most healthy beverage due to its benefits within the body (Tahani & Sabzian, 2018).

What kind of tea do you drink?  
Most popular tea in the U.S. 2019



## Composition of Green Tea

The leaves in green tea originate from a plant called *camellia sinensis* which contain the natural organic compound **polyphenol**. In the polyphenol found in green tea, a group of **flavonoids** gives rise to **catechins** which are the major ingredient providing antioxidant properties. Antioxidants can decrease damage to cells, reducing oxidative stress, which has been associated with cardiovascular disease, cancer, arthritis, and other inflammatory diseases (Ware, 2018). Catechins and other components in green tea can aid in promoting a healthier oral environment (Shetty et al., 2020).

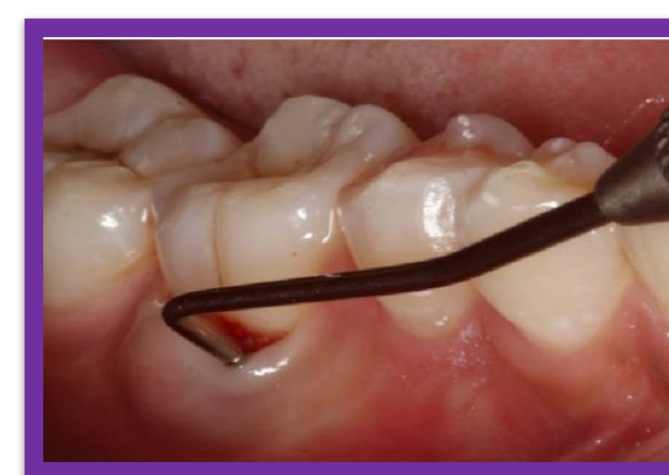


## Reduction of Inflammation, Caries, and Periodontal Disease

- When food is consumed, an enzyme in saliva called amylase ferments starch and produces acid.
- Acid in the mouth increases susceptibility to cariogenic bacteria.
- Catechin contained in green tea inhibits the acid produced by bacteria.
- Tannins, a polyphenol in green tea, are considered an antimicrobial agent.
- Both catechins and tannins aid in the reduction of bacteria that triggers inflammation, caries, and periodontal disease.
- Green tea mouthwash reduces VSC (volatile sulfur compounds) which trigger and accelerate periodontal disease (Tahani and Sabzian, 2018).
- Green tea increases salivary flow rate and pH levels. Keeping pH above baseline works as a buffer, keeping the oral environment neutral, and inhibiting the growth of oral bacteria (Shetty et al., 2020).

## Decrease in Halitosis

- Gram negative anaerobes and VSC are responsible for the development of halitosis, commonly known as bad breath.
- One of the most abundant catechins in green tea is EGCG (Epigallocatechin gallate) which suppress gram negative anaerobe bacteria and VSC.
- A systematic review by Tahani and Sabzian (2018) sought to evaluate the clinical impact of green tea mouthwash on halitosis. The study supported the ability of green tea mouthwash to reduce halitosis, primarily due to the rinsing and antimicrobial action of green tea.



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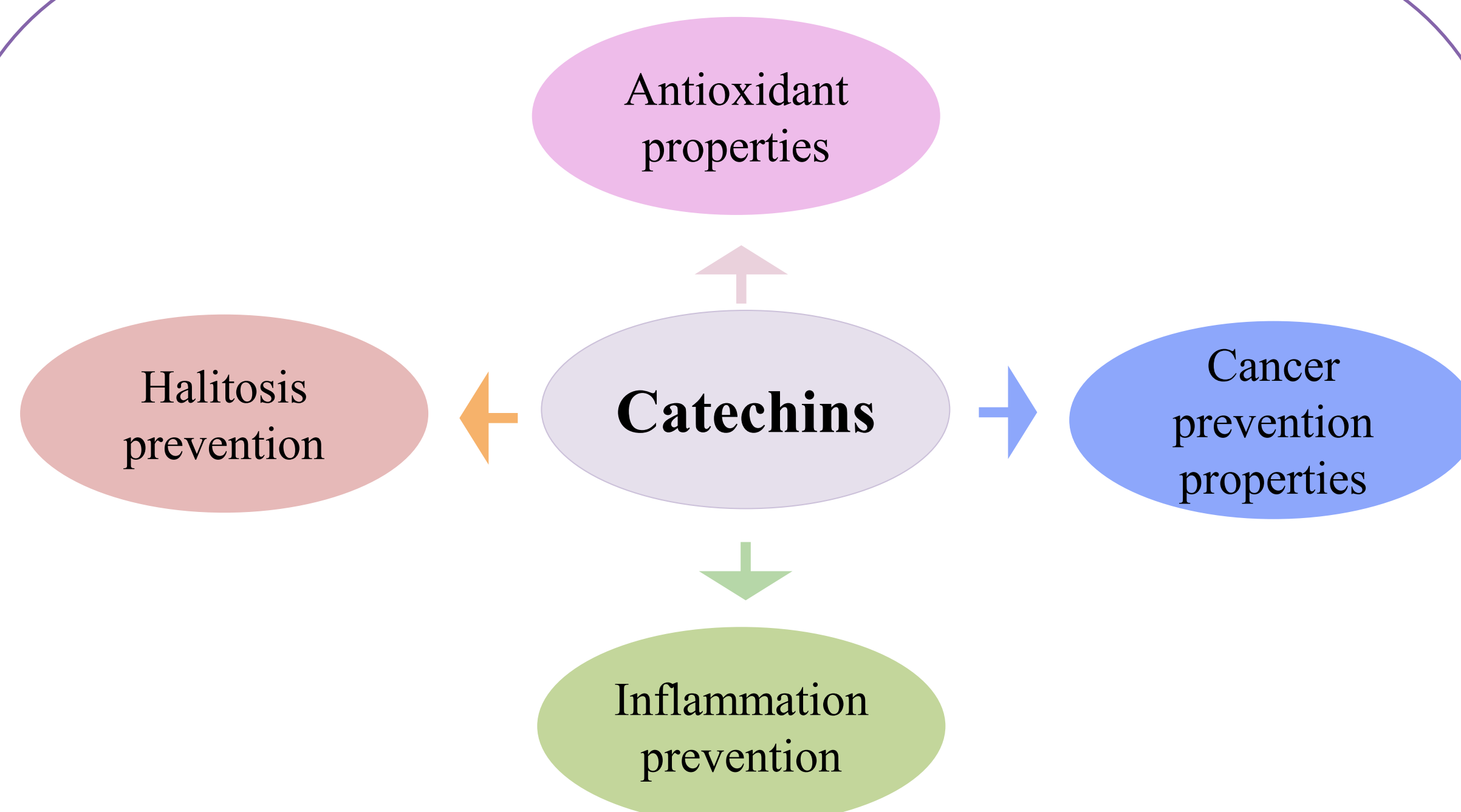


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## Cancer Prevention Properties

- Green tea consumption has a protective element on oral cancer.
- Catechin, mainly EGCG, inhibits the growth of tumor cells and destroys the tumor cells in oral carcinomas.
- Specific diets, such as those which include green tea, allow cellular changes and modifies genetic material in DNA sequences, preventing the development of oral cancer (Rodríguez-Molinero et al., 2021).
- A study Rafieiana et al., (2018) sought to identify the correlation between consuming green tea and developing the risk of head and neck squamous cell carcinomas (HNSCC). Results revealed consumers who never drank green tea were 2.2 to 3.1 times more likely to develop HNSCC when compared to consumers who drank one or more cups of green tea daily.

## Conclusion



The prevention of inflammation, caries, periodontal disease, halitosis and oral cancer plays an important role in maintaining a healthy oral environment. The antioxidant and antimicrobial properties in green tea, can provide oral health benefits.

Drinking 3 to 5 cups of green tea per day provides approximately 180 mg of catechins. There are also green tea supplements available. According to Hu et al. (2018), a safe dose is considered 338 mg EGCG per day. Since there are many different green tea supplements on the market, it is always recommended to consult with a physician prior to use.

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