

LIFTING THE VEIL ON THE MYSTERY OF ASTRINGENCY

A dry, rough sensation in your mouth? This is astringency, a little-known and often unloved sensation.

To experience this, you just need to eat a pear that's not quite ripe, a handful of nuts or a piece of banana peel. The sensation of astringency is induced by the tannins in plants whose main function is to protect plants against parasites and predators. Astringency is thought to contribute to this defence mechanism through its unpleasantness.

For a long time, researchers thought that the sudden drying of the oral mucosa associated with astringency was caused by the precipitation of salivary proteins caused by tannins. However, recent work by CSGA researchers has led to a new hypothesis. The researchers focused on MUC1, a protein which is present on the surface of the cells of the oral mucosa. This protein is a sensor in the extra cellular environment and is made up of two detachable parts. One is anchored in the cell membrane and the other is entirely extra cellular. This new hypothesis suggests that tannins cause a separation of these two parts of MUC1 which then triggers a cascade of reactions leading to the sensation of astringency.

Currently, astringency is seen as one of the main obstacles to people including more vegetables in their diet. A better understanding of the mechanisms of the perception of astringency is thus essential to select plant varieties and develop culinary processes to effectively respond to the challenges of tomorrow's food while also helping people maintain pleasure in eating.

Contact

Francis Canon, francis.canon@inrae.fr

To know more

Canon F, Belloir C, Bourillot E, Brignot H, Briand L, Feron G, Lesniewska E, Nivet C, Septier, C, Schwartz M, Tournier C, Vargiolu R, Wang M, Zahouani H, Neiers F (2021). Perspectives on Astringency Sensation: an Alternative Hypothesis on the Molecular Origin of Astringency. *Journal of Agricultural and Food Chemistry*.

<https://www.inrae.fr/actualites/dessous-lastringence>

Keywords

Astringency; oral sensation; **mucine** ; vegetal protein; tannins

