Editorial

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# Taste-Altering Properties of Carboxymethyl Cellulose and Nanocellulose

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## Editorial

For the first time, the taste-altering characteristics of Nanofibrfiflflar Ceflfluflose (NFC) and Carboxymethyfl Ceflfluflose are compared.The samples were made into gels, with and without sweet and bitter flavour components added. The viscosities of the NFC and CMC samples were put to the same level as shear rates frequently encountered in the oral cavity, because viscosity is known to alter taste perception. The bitterness and sweetness of the sampleswere judged by a trained panel of ten assessors. The assessors were also given the option of describing the samples in their own terms. When sweet chemicals were introduced, the thickening agents' taste-modifying abilities were at the same level. CMC, on the other hand, was better at reducing the bitterness of quinine hydrochloride than NFC, which had no effect on the compound's bitterness. This was unexpected, considering prior investigations of NFC had shown that it has a high quinine binding capability. The open-ended replies suggested that the NFC-containing samples had an astringent feel, but the CMC samples produced a salty feel for certain assessors. This might explain why NFC is unable to disguise the bitterness of quinine hydrochloride, since astringency may augment bitterness while salty suppresses it. Both thickening agents were thought to be a little bit bitter.

Bitterness is one of the taste modalities that are frequently regarded as unpleasant. Many ways have been used to minimize bitterness, including removing bitter-tasting chemicals or adding other tastes to suppress or mask the bitterness, using physical arriers such as encapsulations, coatings, or emulsions, and using bitterness-inhibiting chemicals. Bitterness reduction is a critical issue in pharmaceutical and food research, although the goals are different: Pharmaceutical development seeks to achieve a palatable/pleasant degree of bitterness, whereas food development seeks to alter the whole sensory profile to make it more appealing to customers.

One way to suppress bitter feelings deriving from food is to use physical barriers to prevent bitter substances from getting into touch with taste receptors by controlling their release during inmouth processing or preventing their interactions with receptors.

When using physical barriers, one strategy is to increase the viscosity. The impact of higher viscosity on bitterness has been studied extensively. Using varying quantities of Carboxymethyl Cellulose (CMC) and flavour components such as glucose, citric acid, sodium chloride, and quinine sulphate, scientists investigated the influence of viscosity on perceived flavour intensity. With bitter quinine sulphate at low concentrations, the rise in viscosity resulted in a drop in taste intensities and even a non-detectable flavour. Some researchers looked at the ability of CMC (at low and medium viscosities) to reduce caffeine bitterness when combined with other hydrocolloids such hydroxypropyl cellulose, sodium alginate, and xanthan gum. CMC at low viscosity, as well as sodium alginate and xanthan, were shown to reduce bitterness intensity, but CMC at medium viscosity and hydroxypropyl cellulose had no such impact. This suggests that the type of hydrocolloid utilised has an impact on its capacity to reduce bitterness. New viscositymodifying cellulose compounds are being developed that may have the same effect on flavour as CMCs. A specific class of nanocellulose materials has recently gotten a lot of interest. They are nanoscale-wide materials made from cellulose fibres using chemical, enzymatic, or physical techniques. They also have the right rheological characteristics for food sector stabilising and emulsifying applications. Dense network and consequently strong mechanical and barrier qualities, as well as transparency, are favourable qualities for food packaging. Nanocellulose materials have no or minimal toxicity, according to current understanding. However, further study in this area is required.