Cetylpyridinium Chloride, An innovative molecule

The use of physical and chemical components for oral hygiene dates back to approximately 3000 years before Christ. Throughout history, man has developed tools to take care of teeth and prevent bad odour. Later, with the emergence of microbiology, it was found that those responsible for bad breath and the most common oral diseases were bacteria, and removing them with antiseptics was proposed.

Until now, a series of compounds with the ability to eliminate microorganisms have been tested; however, it has been discovered that not all of them can be used in the oral cavity, because they can potentially damage soft tissues, mucosa or teeth, or cause they have an unpleasant taste or smell. These difficulties still exist today and should be resolved in order to come up with effective oral hygiene tools.

A series of compounds that are capable of combating dental plaque exist and have been classified as follows:

- **Antiseptic agents** that prevent proliferation and/or eliminate microorganisms that form plaque.
- **Antibiotics** capable of inhibiting or killing specific bacterial groups.
- Enzymes or enzyme combinations that can break up or disperse the extracellular matrix of the biofilm or act upon the commensal physiology.
- Non-enzymatic, dispersing, denaturizing or modifying agents that can alter plaque structure or the metabolic activity of plaque.

Agents that can interfere with the adherence of the acquired pellicle.

Currently, a great number of toothpastes and mouthwashes are available on the market that are presented as products that are efficient in maintaining oral health. Different antigingivitis and antiplaque products are formulated with active ingredients such as triclosan (toothpastes), stannous fluoride (toothpastes), cetylpyridinium chloride (CPC) (mouthwashes and toothpastes), and zinc lactate in its formula are the ones that yielded the best results.

Pros and Cons of CHX, alcohol and CPC

Currently, the majority of mouthwashes use CHX, alcohol and CPC as their active ingredients or mixtures of these. However, different studies have found that alcohol can present some adverse effects, such as oral or oticophagical cancer and the deterioration of synthetic dental reconstruction materials and is contraindicated in patients with mucositis, immunocompromised patients, patients undergoing head and neck irradiation, cancerous patients and on children 6,7,8.

**DIFFERENT STUDIES HAVE SHOWN THAT MOUTHWASHES CONTAINING CHX, CPC AND A COMBINATION OF BOTH ACT EFFICIENTLY AS ANTIPLAQUE AGENTS ON HALITOSIS AND ON GINGIVITIS.**

Different studies have shown that mouthwashes containing CHX, CPC and a combination of both act efficiently as antiplaque agents on halitosis and on gingivitis 3,9,10,11. CHX is probably the most frequently used molecule in different health disciplines due to its excellent antibacterial effect 12,13. Particularly in the oral cavity, it follows the best results, especially in patients who have undergone irradiation for head and neck cancer or those who suffer from periodontitis or gingivitis.

**What research has Dentaid carried out on the CPC molecule?**

At Dentaid, a number of studies have been performed using this molecule, that have led to the confection of diverse formulations that currently aid in human oral hygiene. Also, among these, we have studies on antimicrobial activity, stability studies of the formulations for replacing ethyl alcohol in mouthwashes and improving CPC’s bioavailability.

**Have we also carried out different clinical studies where the activity of different mouthwashes against halitosis was tested?**

This same study also measured the quantity of volatile sulphur compounds (responsible for the bad odour of halitosis) and proved that they were reduced considerably when using mouthwashes with CPC as one of its active ingredients 14.

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