

**A possible oral health effect
of colostrum
containing dentifrices**



How zendium toothpaste works

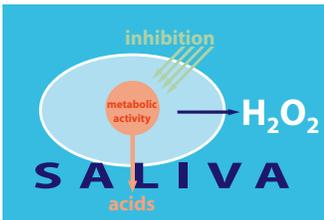
In zendium only the natural defence mechanisms that occur in the oral cavity or that mimic those functioning in the oral cavity have been explored.

zendium strengthens the natural anti-microbial lactoperoxidase system in saliva. zendium contains a natural enzyme system from *Aspergillus* to produce peroxidase that is used for extra generation of hypothiocyanite (OSCN^-). The extra OSCN^- is the boost of the natural salivary peroxidase system and controls the resident bacterial flora and keeps out the unwanted pathogens. zendium is also enriched with the enzyme lactoperoxidase, an enzyme that can substitute the saliva peroxidase.

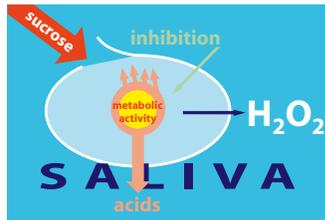
We have focussed on another safe biological system that could contribute to the salivary defense to make zendium stronger and more complete. This new ingredient is colostrum. Colostrum is the very first milk produced by mammals after giving birth and it contains antibacterial and protective substances.

Colostrum contains amongst others immunoglobulins and also some anti-microbial substances like lactoferrin, lactoperoxidase and lysozyme. The actives from colostrum are also natural constituents of saliva. In saliva these natural actives are also involved in the protection of the oral cavity by exhibiting anti microbial activity. Therefore, colostrum fits perfectly well the zendium philosophy i.e. to use nature's defense system from saliva for protection of the oral cavity against almost all ailments.

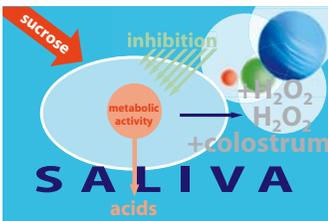
zendium helps nature- the saliva to ensure a healthy mouth.



Normal situation oral micro flora.



Activated oral micro flora.



Some extra H_2O_2 and colostrum can restore the balance in the oral micro flora.

A possible oral health effect of colostrum containing dentifrices

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Colostrum is milk that is produced during the first days post partum and it contains high concentrations of antibodies, enzymes and nutrients that protect the neonate against infection. Pedersen et al. (2002) recommended use of colostrum containing oral hygiene products for individuals suffering from oral medical problems.

Objectives: To examine the clinical effect of three colostrum/enzyme containing dentifrices without sodium lauryl sulfate (SLS) with two appropriate controls to the number of oral ulcers in a group of patients suffering from multiple recurrent aphthous ulcers (RAU). Other oral health parameters such as plaque index and gingival bleeding point were also to be investigated.

Methods: All dentifrices were tested in a test period of 8 weeks. Each participant tested all five dentifrices. A wash out period of one week between each test period was necessary. 75 patients with RAU participated in this double-blind, crossover study. Only patients with at least one aphthous ulcer during a 6-week period were accepted. Friedman's non-parametric test was applied to assess evidence of overall differences between the dentifrices tested, followed by the non-parametric Wilcoxon matched-pairs signed-ranks test.

Results: Brushing with the control, a 1.2 % SLS containing toothpaste resulted in a mean number of 9.23 new ulcers during the experimental period. The experimental colostrum containing toothpastes resulted in 3.98, 4.01 and 4.34 new ulcers respectively during the same period ($p < 0.05$). The plaque index was reduced significantly when the participants brushed with the colostrum/enzyme containing dentifrices compared to both controls. The colostrum containing dentifrices reduced the plaque index with 19.42 %, (mean value) compared to the controls with a percentage reduction measured to 5.67 %.

Conclusion: It might be suggested that incorporation of bovine milk-derived colostrum into human oral health care products could be a serious and commercially active attempt to enhance and restore saliva's own antimicrobial capacity.

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